CA-IDMS®/Log Analyzer

User Guide

15.0

Computer Associates

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Contents

About This Guide

What this Manual is About.

This guide provides the information needed to run CA-IDMS/Log Analyzer. In addition, the many features that CA-IDMS/Log Analyzer offers are documented to assist you.

Organization

Chapter	Description
1	Presents a summary of the capabilities of CA-IDMS/Log Analyzer. It includes benefits, special features, and CA-IDMS/Log Analyzer reports will make your CA-IDMS environment more efficient.
2	Describes all of the reports CA-IDMS/Log Analyzer produces and their functions.
3	Describes the parameters needed to produce the CA-IDMS/Log Analyzer reports.
4	Provides guidelines for customizing the billing data produced by CA-IDMS/Log Analyzer.
5	Explains how to make CA-IDMS/Log Analyzer operate in your environment.
6	Provides a list of all messages generated by CA-IDMS/Log Analyzer, along with the reasons for occurrence and suggested actions to be taken.
Appendix A	Provides instructions for printing the Computer Associates source code used to tailor the CA-IDMS/Log Analyzer billing reports.
Appendix B	Describes the External Request Element Extension (ERE). Altering the ERE description is necessary if you want to tailor the CA-IDMS/Log Analyzer Billing Reports or the Billing Record file.
Appendix C	Describes the EXTRACT record. CA-IDMS/Log Analyzer uses the EXTRACT record to generate reports.
Appendix D	Describes the CA-IDMS/Log Analyzer Billing Record File. Altering this record layout is necessary if you want to tailor the CA-IDMS/Log Analyzer Billing file.
Appendix E	Provides specific names of I/O modules needed in the core image library by CA-IDMS/Log Analyzer as well as the conditions under which each I/O module is needed.
Index	Provides an alphabetical list of CA-IDMS/Log Analyzer concepts with their locations in the user guide.

Chapter 1. General Information

1.1 Overview

CA-IDMS/Log Analyzer, a CA-IDMS database analysis and management tool, produces a variety of reports that present useful information about database utilization. All of the CA-IDMS/Log Analyzer reports are generated from information written to the CA-IDMS Log. The CA/IDMS Log Analyzer assumes if the year is greater than 69 the century is 19; if the year is less than 69 the century is 20.

1.2 What is CA-IDMS/Log Analyzer?

CA-IDMS/Log Analyzer, a CA-IDMS performance analysis and management tool, records information taken from the CA-IDMS Log and produces a variety of database analysis reports that gauge resource use and system performance.

CA-IDMS/Log Analyzer reports provide a clear, accurate, and up-to-date picture of resource use at your installation. This database utility also answers many other system management questions that will help you fine-tune your CA-IDMS environment and help make users accountable for database use.

Users who are familiar with CA-IDMS/Journal Analyzer will recognize certain CA-IDMS/Log Analyzer reports because they closely resemble some of the reports available through CA-IDMS/Journal Analyzer. But they are generated using statistics from the Archived Log rather than the Journal File. This means you can get some of the same management information from CA-IDMS/Log Analyzer without the system overhead associated with reading statistics from the Journal File.

In addition, CA-IDMS/Log Analyzer uses information from the Log File that is not contained in the Journal File. With CA-IDMS Release 15. and the CA-IDMS/Log Analyzer version of the CA-IDMS SVC exit, billing-related information that can be helpful in a chargeback situation is contained on the log. CA-IDMS/Log Analyzer takes this information, ties it to a particular user, and produces billing-related reports that can augment billing/chargeback and budgeting procedures at your installation. Source code for this SVC exit and these reports enables you to tailor them to meet your specific needs.

Billing data also is available as a separate file. You can customize the CA-IDMS/Log Analyzer Billing Record File to meet existing system requirements by modifying source code supplied by Computer Associates International, Inc.

1.3 Processing Environment

CA-IDMS/Log Analyzer supports CA-IDMS Release 15.0, and CA-IDMS/DC Release 15.0; it operates under any of the OS/390 operating systems or VSE/ESA Virtual operating systems having Release 3.0 or higher of COBOL.

1.4 How CA-IDMS/Log Analyzer Improves Productivity

CA-IDMS/Log Analyzer reports will expand your management perspective and allow you to improve productivity at your CA-IDMS installation.

Using CA-IDMS/Log Analyzer reports, you can establish system controls with discretion, forecast trends concerning use of the information resource and gain a better understanding of CA-IDMS performance capabilities. Specifically, CA-IDMS/Log Analyzer reports:

- Identify the user, transaction, terminal, or account number that is associated with database use
- Present CA-IDMS statistics in a format you can use to measure and evaluate database resource consumption and system performance
- Provide quantitative statistics on I/Os, CPU cycles, total run-units that give you a picture of total system efficiency.

1.5 Reports Produced by CA-IDMS/Log Analyzer

CA-IDMS/Log Analyzer generates a total of 13 log reports and an audit report, and it also creates a Billing Record File. This database utility is parameter-driven: you control the output by supplying the proper parameters. All CA-IDMS/Log Analyzer reports use statistics from the CA-IDMS Log to produce reports.

1.5.1 Three Types of CA-IDMS/Log Analyzer Reports

CA-IDMS/Log Analyzer produces three major types of log reports, including:

Billing Reports--Four Billing Reports relate CA-IDMS statistics to the user(s) of the database. While CA-IDMS/Log Analyzer is not a billing package, the reports provide useful CA-IDMS statistics that are tied to job accounting data for batch users and to terminal ID, user ID, or transaction ID for CICS, CA-IDMS/DC, or CA-ADS dialog transactions. These reports are open-ended, because Computer Associates International, Inc. also provides source code that allows you to tailor them to the existing billing system in your environment. See Chapter 4, “Customizing the Billing Reports” on page 4-1.

Management Reports--Five Management Reports present information about CPU cycle

Program Reports--Four Program Reports contain both detailed and summarized information by application program or dialog. These reports provide statistics on pages read, ratios, counts, and other significant CA-IDMS statistics.

1.5.1.1 Reports on CA-ADS Dialogs

CA-ADS dialogs are included in the reports, listed as online programs. The statistics generated are the same as the statistics for programs. CA-IDMS/Log Analyzer also reports overhead records for CA-ADS, containing system usage statistics that cannot be attributed to any specific dialog. The overhead records are reported as separate programs (named $ADS@@OH and $ADS@@AO). If you are using these records for billing/chargeback purposes, you should divide the usage in these reports proportionately among the dialogs executed by each user.

1.5.1.2 Audit Report Summarizes Processing

The Audit Report monitors and summarizes CA-IDMS/Log Analyzer processing, lists all messages generated during each execution, and also lists the parameters you specified.

1.5.1.3 Using the Billing Record File

The Billing Record File collects database utilization information from the CA-IDMS Log. This file can be used as input to an existing billing system in your environment. This file adds new flexibility to the CA-IDMS environment by providing CA-IDMS statistics such as CPU cycle information and I/Os, then ties this information to user ID by transaction, terminal, or operator.

1.5.1.4 Customizing the Billing Record File

The module that produces the Billing Record File is supplied as source code. This functional billing model can be customized to meet your particular needs, as dictated by your billing/chargeback system, and then used as input to your in-house billing system.

1.6 SVC User Exit Module

The SVC User Exit Module is a feature provided by CA-IDMS/Log Analyzer that helps control data from the CA-IDMS Log.

Invoked in the CA-IDMS SVC as a BIND RUN-UNIT is processed, this module makes it possible for you to not only log information about run-unit execution for inclusion in the billing file, but also to log information that relates run-unit information back to the specific batch job or TP task from which it originated.

As supplied, the module will capture user identification information (by terminal, transaction, or operator for each CICS transaction, or by account for each batch job) so that it can be written to the CA-IDMS Log. Then CA-IDMS statistics can be tied back to other statistics for the same user transaction or program.

The module is supplied as source code. This means you can use the identification information selected by Computer Associates International, Inc. or you can tailor it to meet your organization's needs. When combined with the ability to customize the billing reports and the billing file, this exit module gives you control over the content and format of statistical (billing) data taken from the CA-IDMS Log.

1.7 Reports and Their Functions

1.7.1 Billing Reports

Billing Reports use statistics from the CA-IDMS Log to produce four reports that can serve as a functional model for building an effective billing system in your environment. Depending on the parameters you select, run-unit activity can be tied to a specific user, transaction, terminal, or account number. These reports can be customized to meet your unique needs.

- Billing Details Report
- Billing Summary Report
- Billing System Summary Report
- Billing Grand Summary Report

1.7.2 Billing Record File

This file can be input to your existing billing/chargeback system and can also be customized to meet your unique requirements.

1.7.3 Program Reports

Program Reports use statistics from the CA-IDMS Log to offer detailed and summarized reports that show how efficiently your application programs and dialogs are using CA-IDMS.

- Program Details Report
- Program Summary Report
- Program System Summary Report
- Program Grand Summary Report

1.7.4 Management Reports

CA-IDMS/Log Analyzer produces three types of Management Reports: Highlights/Summary Reports, Highlights/Buffer Pool Utilization Report, and the Management Ranking Report.

- Management Highlights/Summary Reports
  - Highlights Program Summary Report
  - Highlights System Summary Report
  - Highlights Grand Summary Report
- Management Highlights/Buffer Pool Utilization Report
- Management Ranking Report

1.7.5 Audit Report

Generated dynamically, the Audit Report summarizes processing, lists messages received during an execution of CA-IDMS/Log Analyzer, and lists all the parameters you supplied.

Chapter 2. System Output

2.1 Overview

CA-IDMS/Log Analyzer reports provide several views of database activity from information contained in the archive of the CA-IDMS Log. These views include: database modifications, detail and summary statistics, problem solving information, and highlights/rankings of program performance. CA-IDMS/Log Analyzer produces two types of reports: Log Reports and an Audit Report. CA-IDMS/Log Analyzer also creates a Billing Record File for input to your billing system. While the supplied Billing Reports and the Billing Record File are fully functional, you probably will want to use the source code and tailor the reports and file to your specifications.

2.2 Reports Produced by CA-IDMS/Log Analyzer

CA-IDMS/Log Analyzer provides a variety of Log Reports using information taken from the CA-IDMS Log. Log Reports can be broken down into three categories: Billing Reports, Program Reports, and Management Reports.

2.2.1 Billing Reports

Billing Reports are available at four levels of detail. CA-IDMS/Log Analyzer uses the same information to produce four different billing reports. The reports are selected and sequenced on fields that are meaningful in a billing/chargeback system. User IDs are given for CICS, CA-IDMS/DC, and CA-ADS. Batch account billing information is provided for all batch programs.

The four Billing Reports are:

- **Billing Details Report**
- **Billing Summary Report**
- **Billing System Summary Report**
- **Billing Grand Summary Report**

2.2.2 Program Reports

Program Reports (similar to the Billing Reports) are available at four levels of detail. Program Reports are selected and sequenced by the name of the program that generates the run-unit activity. CA-IDMS/Log Analyzer uses the same information to produce four different program reports.

They include:

- **Program Details Report**
- **Program Summary Report**
- **Program System Summary Report**
- **Program Grand Summary Report**

2.2.3 Management Reports

There are three types of Management Highlights/Summary Reports:

- **Highlights Program Summary Report**
- **Highlights System Summary Report**
- **Highlights Grand Summary Report**

CA-IDMS/Log Analyzer also produces two other Management Reports:

- **Highlights/Buffer Pool Utilization Report**

- **Ranking Report**

2.2.4 Audit Report

The Audit Report lists all parameters input and processed, and also presents a list of all messages that were generated during execution.

2.3 About CA-IDMS/Log Analyzer Billing Reports

The Billing Reports use information from the CA-IDMS Log to produce both detailed and summarized report statistics. Billing Reports can serve as a functional model for building an effective billing system in your environment. You will get this report by specifying REPORT = BILLING on the parameter statement.

2.3.1 Tying Run-Unit Activity to an ID and a time

Depending on the parameters you choose, run-unit activity can be tied to a specific user, transaction, terminal, or account number. For CA-IDMS/DC run-units, the data reported under the headings OPER-ID, TERM-ID, or TRANS-ID comes from the log record. (For CICS, this information is taken from the External Request Element (ERE) extension as it is built by the CA-IDMS/Log Analyzer version of the CA-IDMS SVC exit routine. The data reported as ACCOUNT for batch jobs also originates from the ERE extension.)

In addition, the Billing Reports present this information within the framework of the time interval you select. Run-unit totals are shown; they are also reflected as a ratio of the system totals (i.e., the percentage of all CA-IDMS resources consumed during the specified time interval).

2.3.2 Four Reports--One Set of CA-IDMS Log Statistics

Physically, there are four Billing Reports (and the Billing Record File) to choose from. It is important to understand, however, that each report is produced from the statistics that are found on the CA-IDMS Log. Statistics in the reports are presented in various formats and at different levels of summarization. The Billing Report is available at the detail, summary, system summary, and grand summary level. The grand summary is produced automatically if you choose to have information reported for multiple time intervals.

2.3.3 Hierarchical Nature of Reports

Billing Reports are produced on a hierarchical level: if you ask for the lowest level report (LEVEL = DETAIL), you will also receive the higher-level reports. These would include the Billing Summary Report, which summarizes the data of the Billing Details Report (LEVEL = SUMMARY), and also the Billing System Summary Report (LEVEL = SYSTEM). The Billing Grand Summary Report is controlled by the INTERVAL parameter.

2.3.4 Customizing Billing Reports

While the Billing File and the Billing Reports are functional models, Computer Associates International, Inc. realizes that users will want to tailor CA-IDMS/Log Analyzer billing information and use it in different ways. Source code for the Billing File and Billing Reports is included with CA-IDMS/Log Analyzer. Guidelines for users who want to customize the billing data appear in Chapter 4, "Customizing the Billing Reports" on page 4-1. Instructions for printing source code are included in Appendix A, "USLBILX and USLRPT5 Source Code" on page A-1

2.4 Overview of Billing Reports

Billing Details Report--presents detailed information for each run-unit, reported in termination time sequence. Depending on the parameter combination selected, this report allows you to identify run-unit activity by account number, terminal ID, operator ID, or transaction ID.

Billing Summary Report--records the sum of all run-units invoked by an account number, terminal ID, operator ID, or transaction ID within the time interval you selected.

Billing System Summary Report--presents a sum of all Billing Summaries within the time interval you selected.

Billing Grand Summary Report--produced automatically when you request multiple time intervals. The Billing Grand Summary is simply a total of all the Billing System Summaries.

2.4.1 Billing Details Report

The Billing Details Report presents a detailed view of each run-unit's activity reported in time sequence, based on the parameters selected. Depending on the parameter combination you select, this report allows you to identify run-unit activity by account number, terminal ID, operator ID, or transaction ID. CA-ADS dialogs are reported as online programs.

You will get the Billing Details Report only if you specify LEVEL = DETAIL. In addition, with this specification, you will receive the Billing Summary Report, the Billing System Summary Report and possibly the Billing Grand Summary Report. (The Grand Summary Report is produced only if more than one time interval is reported.)

```
COMPUTER ASSOCIATES                                          CA-IDMS/LOG ANALYZER                                  PAGE nn
mm/dd/yy                                                        BILLING REPORT                                     hh:mm:ss

                                                          DETAILS FOR OPER ID       ADE
                                                        mm/dd/yy  hh:mm - mm/dd/yy hh:mm

TRANS ID  TERM ID  ---END DATE-TIME--  --------PAGES---------  ----RECORDS-----  ---CALC RECORDS---  --VIA RECORDS---  ----TOTAL---
                                       READ  WRITTEN  REQUEST  REQUEST  CURRENT  HOME PAGE  OVERFLW  OWNR PG  OVERFLW  I/O  CPU TIME

ADSGT     VTAMLT01  mm/dd/yy  hh:mm:ss    2        2      188      180       36          2        0        6        0    4        13
TCF       VTAMLT01  mm/dd/yy  hh:mm:ss    0        2      114      114       20          0        0        0        0    2         6
ADS       VTAMLT01  mm/dd/yy  hh:mm:ss    4        0       16       16        4          0        0        0        0    4         6
ADS       VTAMLT01  mm/dd/yy  hh:mm:ss    0        0        8        8        2          0        0        0        0    0         2
ADS       VTAMLT01  mm/dd/yy  hh:mm:ss   18        0      146      160       64          0        0        0        0   18        18
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss   20       12      268      252       54          0        0        0        0   32        19
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss  138        0     1338     1338      488          0        0        0        0  138       157
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss    0        0        0        0        0          0        0        0        0    0         4
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss  130        0     1274     1274      462          0        0        0        0  130       152
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss    0        0        0        0        0          0        0        0        0    0         3
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss  130        0     1274     1274      462          0        0        0        0  130       152
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss    0        0       14       28        6          0        0        0        0    0         4
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss  130        0     1274     1274      462          0        0        0        0  130       145
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss    0        0        0        0        0          0        0        0        0    0         3
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss    0        0       14       28        6          0        0        0        0    0         4
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss  130        0     1274     1274      462          0        0        0        0  130       146
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss    0        0        0        0        0          0        0        0        0    0         3
ICDMEN01  VTAMLT01  mm/dd/yy  hh:mm:ss   10        0       86      128       38          0        0        0        0   10        24
ICDMEN02  VTAMLT01  mm/dd/yy  hh:mm:ss    2        0       18       18        8          0        0        0        0    2         5
ICDWPL01  VTAMLT01  mm/dd/yy  hh:mm:ss  698       24     6970     6938     2444          0        0        0        0  722      1610
ADS2      VTAMLT01  mm/dd/yy  hh:mm:ss    0        0        0        0        0          0        0        0        0    0         1
```

Figure 2-1. Billing Details Report

Note: Report for online run-units where OPER-ID is selected as RUNAME; TRANS-ID and TERM-ID appear as the first two columns on this report.

```
COMPUTER ASSOCIATES                                          CA-IDMS/LOG ANALYZER                                  PAGE nn
mm/dd/yy                                                        BILLING REPORT                                     hh:mm:ss

                                                          DETAILS FOR TRANSACTION ID = ADSG
                                                        mm/dd/yy  hh:mm - mm/dd/yy hh:mm
TRANS ID  TERM ID  ---END DATE-TIME--  --------PAGES-------  ----RECORDS-----  ---CALC RECORDS---  --VIA RECORDS---  ---TOTAL----
                                       READ WRITTEN REQUEST  REQUEST  CURRENT  HOME PAGE  OVERFLW  OWNR PG  OVERFLW  I/O CPU TIME

ADE       VTAMLT01  mm/dd/yy hh:mm:ss  142    86    1640     1790      458          2        0       51        2  228      149
ADE       VTAMLT01  mm/dd/yy hh:mm:ss    4     0      36       54       16          0        0        0        0    4        6
ADE       VTAMLT01  mm/dd/yy hh:mm:ss    0     0       8        8        2          0        0        0        0    0        2
CONS1     VTAMLT01  mm/dd/yy hh:mm:ss    2     0       8        8        2          0        0        0        0    2       14
CONS1     VTAMLT01  mm/dd/yy hh:mm:ss   14     0      84      130       44          0        0        0        0   14       21
CONS1     VTAMLT01  mm/dd/yy hh:mm:ss    0     0       0        0        0          0        0        0        0    0        1
```

Figure 2-2. Billing Details Report

Note: Report for online run-units where TRANS-ID is selected as RUNAME; OPER-ID and TERM-ID appear as the first two columns on this report.

```
COMPUTER ASSOCIATES                                          CA-IDMS/LOG ANALYZER                                    PAGE nn
mm/dd/yy                                                        BILLING REPORT                                       hh:mm:ss

                                                        DETAILS FOR TRANSACTION ID = VTAMLT01
                                                          mm/dd/yy  hh:mm - mm/dd/yy hh:mm

TRANS ID  OPER ID  --END DATE-TIME---  --------PAGES-------  ----RECORDS-----  ---CALC RECORDS---  --VIA RECORDS---  ---- TOTAL---
                                      READ WRITTEN REQUEST  REQUEST  CURRENT  HOME PAGE  OVERFLW  OWNR PG  OVERFLW  I/O  CPU TIME

DCUF              mm/dd/yy  hh:mm:ss    2      0      10       18       6          0        0        0        0       2        3
SADS@@OH          mm/dd/yy  hh:mm:ss    4      0      24       24      10          0        0        0        0       4        3
DME               mm/dd/yy  hh:mm:ss   66      0     618      618     262          0        0        0        0      66       39
ADS2              mm/dd/yy  hh:mm:ss   70      0     942      942     386          0        0        0        0      70      117
ADS2              mm/dd/yy  hh:mm:ss   10      0      84       84      22          0        0        0        0      10       42
ADS2              mm/dd/yy  hh:mm:ss   66      0     586      586     250          0        0        0        0      66       49
ADS2              mm/dd/yy  hh:mm:ss    0      0       0        0       0          0        0        0        0       0        7
ADS2              mm/dd/yy  hh:mm:ss    0      0       0        0       0          0        0        0        0       0        3
ADS2              mm/dd/yy  hh:mm:ss   58      0     284      284      98          0        0        0        0      58       39
ADS2              mm/dd/yy  hh:mm:ss   44      0     244      244      88          0        0        0        0      44       37
ADS2              mm/dd/yy  hh:mm:ss   52      0     252      252      80          0        0        0        0      52       38
ADS2              mm/dd/yy  hh:mm:ss    0      0       0        0       0          0        0        0        0       0        6
ADS2              mm/dd/yy  hh:mm:ss    0      0       0        0       0          0        0        0        0       0        3
```

Figure 2-3. Billing Details Report

Note: Report for online run-units where TERM-ID is selected as RUNAME; TRANS-ID and OPER-ID appear as the first two columns on this report.

```
COMPUTER ASSOCIATES                                          CA-IDMS/LOG ANALYZER                                    PAGE nn
mm/dd/yy                                                        BILLING REPORT                                       hh:mm:ss

                                                        DETAILS FOR ACCOUNTING INFORMATION =$RJS
                                                          mm/dd/yy  hh:mm - mm/dd/yy hh:mm

   PROGRAM     ---END DATE-TIME---  --------PAGES---------  ----RECORDS-----  ---CALC RECORDS---  --VIA RECORDS---  ----TOTAL----
                                    READ  WRITTEN  REQUEST  REQUEST  CURRENT  HOME PAGE  OVERFLW  OWNR PG  OVERFLW  I/O  CPU TIME

   IDMSCHEM    mm/dd/yy  hh:mm:ss  4408   1398     40344    37874     9296         90      104       492      256    5806   5424
   IDMSCHEM    mm/dd/yy  hh:mm:ss     6      3        30       30        6          0        0         0        0       9      6
   IDMSCHEM    mm/dd/yy  hh:mm:ss  5360   2541     53952    50848    10040         91      102       511      242    7901   6609
   IDMSCHEM    mm/dd/yy  hh:mm:ss     8      0        70       70        8          0        0         0        0       8      7
   IDMSCHEM    mm/dd/yy  hh:mm:ss   938     22     10578    10552     3014          0        0         2        4     960    810
   IDMSCHEM    mm/dd/yy  hh:mm:ss  5376   2556     54028    50988    10040         91      102       511      242    7932   6724
   IDMSCHEM    mm/dd/yy  hh:mm:ss  5804   2768     60674    57098    11650        107      122       589      306    8572   8213
   IDMSCHEM    mm/dd/yy  hh:mm:ss  6030   3016     63392    59660    11902        107      122       600      308    9046   8333
   IDMSCHEM    mm/dd/yy  hh:mm:ss  6030   3020     63522    59790    11904        107      122       600      308    9050   8371
   IDMSCHEM    mm/dd/yy  hh:mm:ss  6036   3022     63532    59800    11906        107      122       600      308    9058   8225
   IDMSCHEM    mm/dd/yy  hh:mm:ss  6248   1958     60910    57168    14328        121      158       747      406    8206   8771
   IDMSCHEM    mm/dd/yy  hh:mm:ss  7654   3462     79762    74960    15206        121      158       747      406   11116  10378
   IDMSCHEM    mm/dd/yy  hh:mm:ss  6124   1920     61812    57812    14278        115      162       746      392    8044   8228
   IDMSDMCL    mm/dd/yy  hh:mm:ss   940    324      4950     7006     1822         25       38        95        2    1264    385
   IDMSDMCL    mm/dd/yy  hh:mm:ss   716    278      4430     6108     1612         23       38        87        2     994    330
   IDMSDMCL    mm/dd/yy  hh:mm:ss     4      0        20       32       12          0        0         0        0       4     27
   IDMSDMCL    mm/dd/yy  hh:mm:ss     0      0        20       32       12          0        0         0        0       0     27
   IDMSUBSC    mm/dd/yy  hh:mm:ss  4608   1183     30082    29146     8238         85      106       230       44    5791   3921
   IDMSUBSC    mm/dd/yy  hh:mm:ss  3816   1043     27560    26588     7468         72      100       263       26    4859   3409
   IDMSCHEM    mm/dd/yy  hh:mm:ss  2318   2385     24138    22058      892          0        0         0        0    4703   1638
```

Figure 2-4. Billing Details Report

Note: Report for batch run-units. RUNAME is reported as ACCOUNT: PROGRAM name appears as the first column on this report.

2.4.1.1 Billing Details Report Fields

Below is a description of the various fields that make up the Billing Details Report. Figure 2-1 on page 2-9 through Figure 2-4 on page 2-10 show the four possible types of Billing Details Reports CA-IDMS/Log Analyzer will generate.

REPORT TITLE--The title line of this report varies depending on what you select on the RUNAME, NAME, and RUTYPE parameter statements.

INTERVAL--This line lists the start and stop date/time of the time interval being reported. The data displayed in this line depends on what you select using the START, STOP, and INTERVAL parameters and on the actual date/time of the run-unit activity being reported.

VARIABLE COLUMN(S)--This column(s) varies both in content and number of columns. For online run-units, any combination of OPER-ID, TERM-ID, or TRANS-ID can appear in the first two columns. (Online RUNAME types that do not appear in the REPORT TITLE will appear in these two columns.) For BATCH run-units, one column appears, and it contains PROGRAM. See Figure 2-1 on page 2-9 through Figure 2-4 on page 2-10 for some sample report formats.

END DATE-TIME--Ending date/time of run-unit.

IDMS STATISTICS (taken from the log record)

- **PAGES READ**--Number of pages read from the database.
- **PAGES WRITTEN**--Number of pages written to the database.
- **PAGES REQUEST**--Number of pages requested from the database.
- **RECORDS REQUEST**--Number of records requested from the database.
- **RECORDS CURRENT**--Number of records made current of run-unit.
- **CALC RECORDS HOME PG**--Number of CALC records stored on the home page.
- **CALC RECORDS OVERFLW**--Number of CALC records stored on an overflow page.
- **VIA RECORDS OWNR PG**--Number of VIA records stored on the owner page.
- **VIA RECORDS OVERFLW**--Number of VIA records stored on an overflow page.
- **TOTAL I/O**--Total number of input/output operations performed by the run-unit; the sum of PAGES READ plus PAGES WRITTEN.

TOTAL CPU TIME --Total CPU time used by the run-unit, reported in units of 1/100 seconds; this is the sum of USER-MODE-TIME plus SYSTEM-MODE-TIME as reported by CA-IDMS in the log record.

2.4.2 Billing Summary Report

The Billing Summary Report summarizes all run-units executed for a terminal ID, operator ID, transaction ID, or account within the time interval you select. It is a summary of information from the Billing Details Report.

You will get this report if you specify LEVEL = SUMMARY (or if you specify LEVEL = DETAIL). In addition to the Billing Summary Report, you will also receive the Billing System Summary Report and possibly the Grand Summary Report.

When you look at the Billing Summary Report, focus on the COUNTS (IDMS STATISTICS) and RATIOS. These statistics reveal trends on the vitality of your database environment. MEAN VALUE, ACCUMULATED VALUE, and PERCENTAGE OF SYSTEM OCCURRENCES are reported for each statistical category.

```
COMPUTER ASSOCIATES                                    CA-IDMS/LOG ANALYZER                                PAGE nnnn
mm/dd/yy                                                   BILLING REPORT                                   hh:mm:ss

                                                   SUMMARY FOR TRANSACTION id = USERSCR
                                                   mm/dd/yy  hh:mm - mm/dd/yy hh:mm:ss

RUNUNITS.................TOTAL                                    3

                                                                  MEAN              ACCUMULATED            % OF SYSTEM
                                                                  VALUE                   VALUE            OCCURRENCES

COUNTS...................PAGES READ                             7.00                      21                    .63
                         PAGES WRITTEN                           .67                       2                  33.33
                         PAGES REQUESTED                       70.00                     210                   1.60
                         CALC RCDS ON HOME PAGE                  .33                       1                  33.33
                         CALC RCDS OVERFLOW                      .00                       0                    .00
                         VIA RCDS ON OWNER PAGE                  .67                       2                  33.33
                         VIA RCDS OVERFLOW                       .00                       0                    .00
                         RECORDS REQUESTED                     72.33                     217                   1.64
                         RECORDS BECOMING CURRENT              28.67                      86                   1.94
                         CALLS TO IDMSDBMS                       .00                       0                    .00
                         FRAGMENTS STORED                        .00                       0                    .00
                         ROOTS OR RCDS RELOCATED                 .00                       0                    .00
                         TOTAL I/O                              7.67                      23                    .68
                         TOTAL CPU (100THS SEC)                47.33                     142                   6.81

RATIOS...................PAGES REQUESTED / PAGES READ          10.00
                         RECORDS REQUESTED / PAGES READ        10.33
                         RECORDS REQUESTED / RECORDS BECOMING CURRENT   2.52
                         CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE    .00
                         VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE     .00
```

Figure 2-5. Billing Summary Report

2.4.2.1 Billing Summary Report Fields

Here is an explanation of the fields that make up the Billing Summary Report. A sample report is shown in Figure 2-5

REPORT TITLE--The title line of this report varies depending on what you selected on the RUNAME, NAME, and RUTYPE parameter statements.

INTERVAL--This line lists the start and stop date/time of the time interval being reported. The data displayed in this line depends on what you select using the

START, STOP, and INTERVAL parameters and on the actual date/time of the run-unit activity being reported.

RUN UNITS TOTAL--Total number of run-units terminated within the reported time interval.

COUNTS--The IDMS STATISTICS (taken from the log record) are reported.

- **PAGES READ**--Number of pages read from the database.
- **PAGES WRITTEN**--Number of pages written to the database.
- **PAGES REQUESTED**--Number of pages requested from the database.
- **CALC RCDS ON HOME PAGE**--Number of CALC records stored on the home page.
- **CALC RCDS OVERFLOW**--Number of CALC records stored on an overflow page.
- **VIA RCDS ON OWNER PAGE**--Number of VIA records stored on the owner page.
- **VIA RCDS OVERFLOW**--Number of VIA records stored on an overflow page.
- **RECORDS REQUESTED**--Number of records requested from the database.
- **RECORDS BECOMING CURRENT**--Number of records made current of run-unit.
- **CALLS TO IDMSDBMS**--Number of DML verbs executed.
- **FRAGMENTS STORED**--Number of record fragments stored.
- **ROOTS OR RCDS RELOCATED**--Number of records relocated because of fragment recomposition.

TOTAL I/O--Total number of database input/output operations the run-unit performed.

TOTAL CPU (100THS SEC)--Total CPU time needed to execute the run-unit. (Reported in units of 1/100 seconds.)

MEAN VALUE--Average value per run-unit occurrence within the reported time interval.

ACCUMULATED VALUE--Total value for all run unit occurrences within the reported time interval.

% OF SYSTEM OCCURRENCES--This ratio (expressed as a percentage) is the accumulated value for this run-unit against the accumulated value for all selected run-units active within the reported time interval. This highlights the run-units that are consuming the largest amount of system resources.

RATIOS--A list of five ratios follows.

- **PAGES REQUESTED / PAGES READ**--This ratio measures the effectiveness of buffer pool size and allocation. Small ratios (less than 2.00) can indicate random processing, inadequate buffer pool size, or the need for additional buffer pools. A ratio of 20 is generally considered high.
- **RECORDS REQUESTED / PAGES READ**--This ratio measures the overall effectiveness of space management, CALC synonym handling, VIA options, and buffer management. Large ratios usually indicate effective buffering (i.e., the minimizing of database I/O). A ratio of 20 is generally considered high.
- **RECORDS REQUESTED / RECORDS BECOMING CURRENT**--This ratio measures the amount of processing transparency provided by CA-IDMS. High ratios (a ratio of 20 is generally considered high) indicate that an excessive amount of database traversing is occurring before target records are retrieved. Pay close attention to sorted sets, sets without PRIOR or OWNER pointers, or program strategy that does not use currency efficiently.
- **CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE**--This ratio measures the randomness of the CALC field values, or how full the database areas are. Large ratios or steadily rising ratio values show that there are either a large number of CALC synonyms (multiple values that CALC to the same database page), or that space may be getting scarce and that one or more areas may need to be enlarged. Ideally, this field will show a ratio of less than one (1).
- **VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE**--This ratio measures the effectiveness of the storage of VIA records, or how full database areas are. Large ratios or steadily increasing ratio values can show that there is a lack of clustering or packing of VIA records (near the associated OWNER record), or a lack of randomness of the OWNER record types of VIA member records. Space may be getting scarce and one or more areas may need to be enlarged. Ideally, this field shows ratios of less than one (1).

2.4.3 Billing System Summary Report

The Billing System Summary Report presents a sum-total of all Billing Summaries within the time interval you select. All statistical categories are reported within run-unit type: ONLINE, BATCH, and SYSTEM (SYSTEM is the total of both ONLINE and BATCH run-unit activity during the specified interval). The report shows actual accumulated values for RUN UNITS, COUNTS, and RATIOS. For COUNTS, it also presents the percentage that the value is of total system resources.

You will get this report by specifying LEVEL = SYSTEM. (This report will also be created if you specify LEVEL = DETAIL or LEVEL = SUMMARY.) You may also get the Grand Summary Report.

When you review this report, focus on the COUNTS (IDMS STATISTICS) and RATIOS. These statistics reflect trends on the vitality of your database environment.

```
COMPUTER ASSOCIATES                                    CA-IDMS/LOG ANALYZER                                  PAGE nn
mm/dd/yy                                                  BILLING REPORT                                     hh:mm:ss

                                                          SYSTEM SUMMARY
                                                  mm/dd/yy  hh:mm - mm/dd/yy hh:mm:ss

----------CATEGORY-------------                 -----ONLINE------     ------BATCH------    ------SYSTEM------

RUNUNITS.................TOTAL                        67    100.00           0       .00           67

COUNTS...................PAGES READ                3,353    100.00           0       .00        3,353
                         PAGES WRITTEN                 6    100.00           0       .00            6
                         PAGES REQUESTED          13,129    100.00           0       .00       13,129
                         CALC RCDS ON HOME PAGE        3    100.00           0       .00            3
                         CALC RCDS OVERFLOW            0       .00           0       .00            0
                         VIA RCDS ON OWNER PAGE        6    100.00           0       .00            6
                         VIA RCDS OVERFLOW             0       .00           0       .00            0
                         RECORDS REQUESTED        13,219    100.00           0       .00       13,129
                         RECORDS BECOMING CURRENT  4,389    100.00           0       .00        4,389
                         CALLS TO IDMSDBMS         2,166    100.00           0       .00        2,166
                         FRAGMENTS STORED              0       .00           0       .00            0
                         ROOTS OR RCDS RELOCATED       0       .00           0       .00            0
                         TOTAL I/O                 3,359    100.00           0       .00        3,359
                         TOTAL CPU (100THS SEC)    2,085    100.00           0       .00        2,085

RATIOS...................PAGES REQUESTED / PAGES READ                3.92                .00                3.92
                         RECORDS REQUESTED / PAGES READ              3.94                .00                3.94
                         RECORDS REQUESTED / RECORDS BECOMING CURRENT 3.01               .00                3.01
                         CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE   .00               .00                 .00
                         VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE    .00               .00                 .00
```

Figure 2-6. Billing System Summary Report

2.4.3.1 Billing System Summary Report Fields

Here is a description of the various fields that make up the System Summary Report. See Figure 2-6

INTERVAL--This line lists the start and stop date/time of the time interval being reported. The data displayed in this line depends on what you selected using the START, STOP, and INTERVAL parameters and on the actual date/time of the run-unit activity being reported.

RUN UNITS TOTAL --Total number of run-units terminated within the reported time interval.

COUNTS--The IDMS STATISTICS are reported. For a detailed explanation of CA-IDMS statistics, see 2.4.2, “Billing Summary Report” on page 2-12.

- **PAGES READ**
- **PAGES WRITTEN**
- **PAGES REQUESTED**
- **CALC RCDS ON HOME PAGE**
- **CALC RCDS OVERFLOW**
- **VIA RCDS ON OWNER PAGE**
- **VIA RCDS OVERFLOW**
- **RECORDS REQUESTED**

- **RECORDS BECOMING CURRENT**
- **CALLS TO IDMSDBMS**
- **FRAGMENTS STORED**
- **ROOTS OR RCDS RELOCATED**

TOTAL I/O--Total number of input/output operations performed during the time interval.

TOTAL CPU (100THS SEC)--Total CPU time used during the time interval, reported in units of 1/100 seconds.

RATIOS--A list of five ratios follows. For a detailed explanation of the ratios that appear on the report, see 2.4.2, "Billing Summary Report" on page 2-12.

- **PAGES REQUESTED / PAGES READ**
- **RECORDS REQUESTED / PAGES READ**
- **RECORDS REQUESTED / RECORDS BECOMING CURRENT**
- **CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE**
- **VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE**

ONLINE--The accumulated value of COUNTS and RATIOS for all run-units that executed online during the time interval. Also, for COUNTS, the % OF SYSTEM OCCURRENCES is shown.

BATCH--The accumulated value of COUNTS and RATIOS for all run-units that executed batch during the time interval. Also, for COUNTS, the % OF SYSTEM OCCURRENCES is shown.

SYSTEM--The accumulated value of COUNTS and RATIOS for all run-units that executed during the time interval.

ACCUMULATED VALUE--Total value for all run-unit occurrences within the reported time interval.

% OF SYSTEM OCCURRENCES--For ONLINE and BATCH, this ratio (expressed as a percentage) is the accumulated value for this COUNT against the accumulated value for all selected (SYSTEM) run-units active within the reported time interval. This highlights the run-units that are consuming the largest amount of system resources.

2.4.4 Billing Grand Summary Report

CA-IDMS/Log Analyzer automatically produces a Billing Grand Summary Report whenever multiple time intervals are selected (i.e., when the INTERVAL is less than the entire START STOP DATE/TIME period). This report is a total of all Billing System Summaries.

```
COMPUTER ASSOCIATES                                    CA-IDMS/LOG ANALYZER                                    PAGE nn
mm/dd/yy                                                  BILLING REPORT                                     hh:mm:ss

                                                          GRAND SUMMARY
                                                  mm/dd/yy  hh:mm - mm/dd/yy  hh:mm:ss

----------CATEGORY-------------                 -----ONLINE------     ------BATCH------    ------SYSTEM------

RUNUNITS.................TOTAL                       67    100.00           0       .00           67

COUNTS...................PAGES READ               3,353    100.00           0       .00        3,353
                         PAGES WRITTEN                6    100.00           0       .00            6
                         PAGES REQUESTED         13,129    100.00           0       .00       13,129
                         CALC RCDS ON HOME PAGE       3    100.00           0       .00            3
                         CALC RCDS OVERFLOW           0       .00           0       .00            0
                         VIA RCDS ON OWNER PAGE       6    100.00           0       .00            6
                         VIA RCDS OVERFLOW            0       .00           0       .00            0
                         RECORDS REQUESTED       13,219    100.00           0       .00       13,129
                         RECORDS BECOMING CURRENT 4,389    100.00           0       .00        4,389
                         CALLS TO IDMSDBMS        2,166    100.00           0       .00        2,166
                         FRAGMENTS STORED             0       .00           0       .00            0
                         ROOTS OR RCDS RELOCATED      0       .00           0       .00            0
                         TOTAL I/O                3,359    100.00           0       .00        3,359
                         TOTAL CPU (100THS SEC)   2,085    100.00           0       .00        2,085

RATIOS...................PAGES REQUESTED / PAGES READ          3.92                    .00                      3.92
                         RECORDS REQUESTED / PAGES READ        3.94                    .00                      3.94
                         RECORDS REQUESTED / RECORDS BECOMING CURRENT  3.01            .00                      3.01
                         CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE   .00            .00                       .00
                         VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE    .00            .00                       .00
```

Figure 2-7. Billing Grand Summary Report

2.4.4.1 Billing Grand Summary Report Fields

The report fields for the Billing Grand Summary Report are identical to those on the Billing System Summary Report. See 2.4.3, “Billing System Summary Report” on page 2-14 for a description of these fields. Figure 2-7 shows a Billing Grand Summary Report.

INTERVAL--This line lists the start and stop date/time of the time interval being reported. The data displayed in this line depends on what you selected using the START, STOP, and INTERVAL parameters and on the actual date/time of the run-unit activity being reported.

RUN UNITS TOTAL --Total number of run-units terminated within the reported time interval selected.

COUNTS--IDMS STATISTICS are listed below. For a detailed explanation of CA-IDMS statistics, see 2.4.2, “Billing Summary Report” on page 2-12.

- **PAGES READ**
- **PAGES WRITTEN**

- **PAGES REQUESTED**
- **CALC RCDS ON HOME PAGE**
- **CALC RCDS OVERFLOW**
- **VIA RCDS ON OWNER PAGE**
- **VIA RCDS OVERFLOW**
- **RECORDS REQUESTED**
- **RECORDS BECOMING CURRENT**
- **CALLS TO IDMSDBMS**
- **FRAGMENTS STORED**
- **ROOTS OR RCDS RELOCATED**

TOTAL I/O--Total number of input/output operations performed during the time interval.

TOTAL CPU (100THS SEC)--Total CPU time used during the time interval, reported in units of 1/100 seconds.

RATIOS--A list of five ratios follows. For a detailed explanation of the ratios, see the 2.4.3, “Billing System Summary Report” on page 2-14.

- **PAGES REQUESTED / PAGES READ**
- **RECORDS REQUESTED / PAGES READ**
- **RECORDS REQUESTED / RECORDS BECOMING CURRENT**
- **CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE**
- **VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE**

ONLINE--The accumulated value of COUNTS and RATIOS for all run-units that executed online during the time interval. Also, for COUNTS, the % OF SYSTEM OCCURRENCES is shown.

BATCH--The accumulated value of COUNTS and RATIOS for all run-units that executed batch during the time interval. Also, for COUNTS, the % OF SYSTEM OCCURRENCES is shown.

SYSTEM--The accumulated value of COUNTS and RATIOS for all run-units that executed during the time interval.

ACCUMULATED VALUE--Total value for all run-unit occurrences within the reported time interval.

% OF SYSTEM OCCURRENCES--For ONLINE and BATCH, this ratio (expressed as a percentage) is the accumulated value for this COUNT against the accumulated value for all selected (SYSTEM) run-units active within the reported time interval.

This highlights the run-units that are consuming the largest amount of system resources.

2.5 About CA-IDMS/Log Analyzer Program Reports

The Program Reports are similar to the Billing Reports. They use information from the CA-IDMS Log to offer detailed and summarized statistical reports that show how efficiently application programs are using CA-IDMS.

Program Report differ from Billing Reports in that they are organized by the run-unit's program name. (For tasks executed within CA-IDMS/DC, these reports are organized by the run-unit's task-ID.) Information about the application program is grouped by selected time intervals. First, each program's totals are reported, then they are reflected as a ratio of the system totals (i.e., the percentage of all CA-IDMS resources consumed during the time interval by programs that were selected by CA-IDMS/Log Analyzer).

You will get this report by specifying REPORT = PROGRAM.

2.5.1 Four Reports--One Set of CA-IDMS Log Statistics

Physically, there are four Program Reports to choose from. It is important to understand, however, that each report is produced from the same statistics taken from the CA-IDMS Log. Statistics are presented in different formats and at various levels of summarization. The Program Report is available at the detail, summary, system summary, and grand summary level. The Program Grand Summary Report is produced automatically if you choose multiple time intervals.

2.5.2 Hierarchical Nature of Reports

Program reports are produced for several hierarchical levels: if you ask for the lowest level report (LEVEL = DETAIL), you will also receive the higher-level reports. These would include the Program Summary Report, which summarizes the data of the Program Details Report (LEVEL = SUMMARY), as well as the Program System Summary Report (LEVEL = SYSTEM). A Program Grand Summary Report is simply a summary of all Program System Summary Reports. This report is controlled by the INTERVAL parameter.

2.6 Overview of Program Reports

Program Details Report--This report shows the information for each run-unit of a program, (or CA-IDMS/DC task) reported in time sequence, within the selected time interval. You may specify which program or class of programs CA-IDMS/Log Analyzer is to report on. You also control the time period and duration of the time interval.

Program Summary Report--records the sum for all run-units of an application program within the time interval you select.

Program System Summary Report--presents a sum of all Program Summary Reports within the time interval you select.

Program Grand Summary Report--produced automatically when you request multiple time intervals. The Program Grand Summary Report is simply a total of all the Program System Summaries.

2.6.1 Program Details Report

The Program Details Report presents a detailed view of application program activity (or CA-IDMS/DC task activity or CA-ADS dialog activity). Most of the statistics in the report are IDMS STATISTICS taken from the CA-IDMS Log. You will get this report when you request LEVEL = DETAILS.

Request this report when there are more than 20 run-unit occurrences for a program, when a strictly chronological sequence of all program activity is desired, or when you want to check every execution of a program to investigate a problem.

```
COMPUTER ASSOCIATES                                    CA-IDMS/LOG ANALYZER                                    PAGE nn
mm/dd/yy                                                  PROGRAM REPORT                                       hh:mm:ss

                                                      DETAILS FOR PROGRAM = ASD2
                                                    mm/dd/yy  hh:mm - mm/dd/yy hh:mm

      RUTYPE   ---END DATE-TIME---  --------PAGES---------  ----RECORDS-----  ---CALC RECORDS---  --VIA RECORDS---  ----TOTAL----
                                     READ  WRITTEN  REQUEST  REQUEST  CURRENT  HOME PAGE  OVERFLW  OWNR PG  OVERFLW  I/O  CPU TIME

      ONLINE   mm/dd/yy  hh:mm:ss     70       0       942       942      386          0        0        0        0     70    117
      ONLINE   mm/dd/yy  hh:mm:ss     10       0        84        84       22          0        0        0        0     10     42
      ONLINE   mm/dd/yy  hh:mm:ss     66       0       586       586      250          0        0        0        0     66     49
      ONLINE   mm/dd/yy  hh:mm:ss      0       0         0         0        0          0        0        0        0      0      7
      ONLINE   mm/dd/yy  hh:mm:ss      0       0         0         0        0          0        0        0        0      0      3
      ONLINE   mm/dd/yy  hh:mm:ss     58       0       284       284       98          0        0        0        0     58     39
      ONLINE   mm/dd/yy  hh:mm:ss     44       0       244       244       80          0        0        0        0     44     37
      ONLINE   mm/dd/yy  hh:mm:ss     52       0       252       252       80          0        0        0        0     52     38
      ONLINE   mm/dd/yy  hh:mm:ss      0       0         0         0        0          0        0        0        0      0      6
      ONLINE   mm/dd/yy  hh:mm:ss      0       0         0         0        0          0        0        0        0      0      3
      ONLINE   mm/dd/yy  hh:mm:ss      0       0         0         0        0          0        0        0        0      0     16
      ONLINE   mm/dd/yy  hh:mm:ss    146       0      1070      1070      468          0        0        0        0    146     77
      ONLINE   mm/dd/yy  hh:mm:ss      0       0         0         0        0          0        0        0        0      0      3
      ONLINE   mm/dd/yy  hh:mm:ss     68       4       610       624      226          2        0        4        0     72    153
```

Figure 2-8. Program Details Report

2.6.1.1 Program Details Report Fields

Here is a description of the various fields that make up the Program Details Report. See Figure 2-8 on page 2-21

REPORT TITLE--The title line contains the name of the application program (or CA-IDMS/DC task) being reported.

INTERVAL--This line lists the start and stop date/time of the time interval being reported. The data displayed in this line depends on what you selected using the START, STOP, and INTERVAL parameters and on the actual date/time of the run-unit activity being reported.

RUTYPE--This line tells whether the application program executed as a BATCH or ONLINE run-unit.

END DATE-TIME--Ending date/time of run-unit.

IDMS STATISTICS--The IDMS STATISTICS (listed below) are taken from the log record.

- **PAGES READ**--Number of pages read from the database.
- **PAGES WRITTEN**--Number of pages written to the database.
- **PAGES REQUEST**--Number of pages requested from the database.
- **RECORDS REQUEST**--Number of records requested from the database.
- **RECORDS CURRENT**--Number of records made current of run-unit.
- **CALC RECORDS HOME PG**--Number of CALC records stored on the home page.
- **CALC RECORDS OVERFLW**--Number of CALC records stored on an overflow page.
- **VIA RECORDS OWNR PG**--Number of VIA records stored on the owner page.
- **VIA RECORDS OVERFLW**--Number of VIA records stored on an overflow page.

TOTAL I/O--Total number of input/output operations performed by the run-unit; the sum of PAGES READ plus PAGES WRITTEN.

TOTAL CPU TIME--Total CPU time used by the run-unit; reported in units of 1/100 seconds. TOTAL CPU is the sum of USER-MODE-TIME plus SYSTEM-MODE-TIME as reported by CA-IDMS in the log record.

2.6.2 Program Summary Report

The Program Summary Report summarizes all run-unit executions of an application program (or CA-IDMS/DC task) within a time interval. The Program Summary Report summarizes information taken from the Program Details Report. You will get this report by specifying LEVEL = SUMMARY (or LEVEL = DETAIL). In addition, you will also receive all higher-level reports.

When you look at the Program Summary Totals Report, focus on the COUNTS (IDMS STATISTICS) and RATIOS. These statistics reveal trends on the vitality of your database environment. This report also presents other CA-IDMS statistics unavailable on the Program Details Report. MEAN VALUE, ACCUMULATED VALUE, and PERCENTAGE OF SYSTEM OCCURRENCES are reported for each statistical category.

```
COMPUTER ASSOCIATES                                  CA-IDMS/LOG ANALYZER                                  PAGE nn
mm/dd/yy                                                PROGRAM REPORT                                  hh:mm:ss

                                                 SUMMARY FOR PROGRAM = $ADS@@OH ONLINE
                                                  mm/dd/yy  hh:mm - mm/dd/yy hh:mm:ss

RUNUNITS.................TOTAL                                  5

                                                               MEAN              ACCUMULATED           % OF SYSTEM
                                                               VALUE                   VALUE           OCCURRENCES

COUNTS...................PAGES READ                           2.00                      10                   .30
                         PAGES WRITTEN                         .00                       0                   .00
                         PAGES REQUESTED                     10.40                      52                   .40
                         CALC RCDS ON HOME PAGE                .00                       0                   .00
                         CALC RCDS OVERFLOW                    .00                       0                   .00
                         VIA RCDS ON OWNER PAGE                .00                       0                   .00
                         VIA RCDS OVERFLOW                     .00                       0                   .00
                         RECORDS REQUESTED                   10.40                      52                   .39
                         RECORDS BECOMING CURRENT             3.60                      18                   .41
                         CALLS TO IDMSDBMS                    4.80                      24                  1.11
                         FRAGMENTS STORED                      .00                       0                   .00
                         ROOTS OR RCDS RELOCATED               .00                       0                   .00
                         TOTAL I/O                            2.00                      10                   .30
                         TOTAL CPU (100THS SEC)               2.60                      13                   .62

RATIOS...................PAGES REQUESTED / PAGES READ         5.20
                         RECORDS REQUESTED / PAGES READ       5.20
                         RECORDS REQUESTED / RECORDS BECOMING CURRENT  2.89
                         CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE   .00
                         VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE    .00
```

Figure 2-9. Program Summary Report

2.6.2.1 Program Summary Report Fields

Here is an explanation of the fields that make up the Program Summary Report. See Figure 2-9.

REPORT TITLE--The title line contains the name of the report, the name of the application program (or CA-IDMS/DC task) being reported, and whether that program executed as an ONLINE or BATCH run-unit.

INTERVAL--This line lists the start and stop date/time of the time interval being reported. The data displayed here depends on what you selected using the START,

STOP, and INTERVAL parameters and on the actual date/time of the program activity being reported.

RUN UNITS TOTAL--Total number of run-units terminated within the reported time interval.

COUNTS--The following IDMS STATISTICS (taken from the log record) are reported.

- **PAGES READ**--Number of pages read from the database.
- **PAGES WRITTEN**--Number of pages written to the database.
- **PAGES REQUESTED**--Number of pages requested from the database.
- **CALC RCDS ON HOME PAGE**--Number of CALC records stored on the home page.
- **CALC RCDS OVERFLOW**--Number of CALC records stored on an overflow page.
- **VIA RCDS ON OWNER PAGE**--Number of VIA records stored on the owner page.
- **VIA RCDS OVERFLOW**--Number of VIA records stored on an overflow page.
- **RECORDS REQUESTED**--Number of records requested from the database.
- **RECORDS BECOMING CURRENT**--Number of records made current of run-unit.
- **CALLS TO IDMSDBMS**--Number of DML verbs executed.
- **FRAGMENTS STORED**--Number of record fragments stored.
- **ROOTS OR RCDS RELOCATED**--Number of records relocated because of fragment recomposition.

TOTAL I/O--Total number of database input/output operations the program performed during the time interval.

TOTAL CPU (100THS SEC)--Total CPU time needed to execute the program during the time interval specified reported in units of 1/100 seconds.

MEAN VALUE--Average value per run-unit occurrence within the reported time interval.

ACCUMULATED VALUE--Total value for all run-unit occurrences within the reported time interval.

% OF SYSTEM OCCURRENCES--This ratio (expressed as a percentage) is the accumulated value for this run-unit against the accumulated value for all selected run-units active within the reported time interval. This highlights the run-units that are consuming the largest amount of system resources.

RATIOS--A list of five ratios follows.

- **PAGES REQUESTED / PAGES READ**--This ratio measures the effectiveness of buffer pool size and allocation. Small ratios (less than 2.00) can indicate random processing, inadequate buffer pool size, or the need for additional buffer pools. A ratio of 20 is generally considered high.
- **RECORDS REQUESTED / PAGES READ**-- This ratio measures the overall effectiveness of space management, CALC synonym handling, VIA options, and buffer management. Large ratios usually indicate effective buffering (i.e., the minimizing of database I/O). A ratio of 20 is generally considered high.
- **RECORDS REQUESTED / RECORDS BECOMING CURRENT**--This ratio measures the amount of processing transparency provided by CA-IDMS. High ratios (a ratio of 20 is generally considered high) indicate that an excessive amount of database traversing is occurring before target records are retrieved. Pay close attention to sorted sets, sets without PRIOR or OWNER pointers, or program strategy that does not use currency efficiently.
- **CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE**--This ratio measures the randomness of the CALC field values, or how full particular database areas are. Large ratios or steadily rising ratio values show that there are either a large number of CALC synonyms, or that space may be getting scarce and that one or more areas may need to be enlarged. Ideally, this field will show ratios of less than one (1).
- **VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE**--This ratio measures the effectiveness of the storage of VIA records, or how full database areas are. Large ratios or steadily increasing ratio values can show that there is a lack of clustering or packing of VIA records (near the associated OWNER record), or a lack of randomness of the OWNER record types of VIA member records. Space may be getting scarce and one or more areas may need to be enlarged. Ideally, this field shows ratios of less than one (1).

2.6.3 Program System Summary Report

The Program System Summary Report presents a sum-total of all Program Summaries within the time interval you select. All statistical categories are reported within run-unit type: ONLINE, BATCH, and SYSTEM (SYSTEM is the total of both ONLINE and BATCH run-unit activity during the specified interval). The report shows the actual accumulated values for RUN UNITS, COUNTS, and RATIOS. For COUNTS, it also shows the mean value and the percentage that the value is of total system occurrences. You will get this report by specifying LEVEL = SYSTEM.

When you review this report, focus on COUNTS (IDMS STATISTICS) and RATIOS. These statistics reflect trends on the vitality of your database environment.

```
COMPUTER ASSOCIATES                                    CA-IDMS/LOG ANALYZER                                  PAGE nn
mm/dd/yy                                                  PROGRAM REPORT                                     hh:mm:ss

                                                        SYSTEM SUMMARY
                                                  mm/dd/yy  hh:mm - mm/dd/yy hh:mm:ss

----------CATEGORY-------------                  -----ONLINE------     ------BATCH------    ------SYSTEM------

RUNUNITS.................TOTAL                        24    100.00        0        .00             24

COUNTS...................PAGES READ                  437    100.00        0        .00            437
                         PAGES WRITTEN                 0       .00        0        .00              0
                         PAGES REQUESTED           3,352    100.00        0        .00          3,352
                         CALC RCDS ON HOME PAGE        0       .00        0        .00              0
                         CALC RCDS OVERFLOW            0       .00        0        .00              0
                         VIA RCDS ON OWNER PAGE        0       .00        0        .00              0
                         VIA RCDS OVERFLOW             0       .00        0        .00              0
                         RECORDS REQUESTED         3,363    100.00        0        .00          3,363
                         RECORDS BECOMING CURRENT  1,359    100.00        0        .00          1,359
                         CALLS TO IDMSDBMS           543    100.00        0        .00            543
                         FRAGMENTS STORED              0       .00        0        .00              0
                         ROOTS OR RCDS RELOCATED       0       .00        0        .00              0
                         TOTAL I/O                   437    100.00        0        .00            437
                         TOTAL CPU (100THS SEC)      551    100.00        0        .00            551

RATIOS...................PAGES REQUESTED / PAGES READ          7.67                .00                7.67
                         RECORDS REQUESTED / PAGES READ        7.70                .00                7.70
                         RECORDS REQUESTED / RECORDS BECOMING CURRENT   2.47       .00                2.47
                         CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE     .00       .00                 .00
                         VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE      .00       .00                 .00
```

Figure 2-10. Program System Summary Report

2.6.3.1 Program System Summary Report Fields

Here is a description of the various fields that make up the Program System Summary Report. See Figure 2-10.

INTERVAL--This line lists the start and stop date/time of the time interval being reported. The data displayed here depends on what you selected using the START, STOP, and INTERVAL parameters and on the actual date/time of the run-unit activity being reported.

RUN UNITS TOTAL--Total number of run-units terminated within the reported time interval.

COUNTS--The IDMS STATISTICS are reported. For a detailed explanation of CA-IDMS statistics, see 2.6.2, “Program Summary Report” on page 2-23.

- **PAGES READ**
- **PAGES WRITTEN**
- **PAGES REQUESTED**
- **CALC RCDS ON HOME PAGE**
- **CALC RCDS OVERFLOW**
- **VIA RCDS ON OWNER PAGE**
- **VIA RCDS OVERFLOW**
- **RECORDS REQUESTED**

- **RECORDS BECOMING CURRENT**
- **CALLS TO IDMSDBMS**
- **FRAGMENTS STORED**
- **ROOTS OR RCDS RELOCATED**

TOTAL I/O--Total number of input/output operations performed during the time interval.

TOTAL CPU (100THS SEC)--Total CPU time used during the time interval, reported in units of 1/100 seconds.

RATIOS--A list of five ratios follows. For a detailed explanation of the ratios, see 2.6.2, “Program Summary Report” on page 2-23.

- **PAGES REQUESTED / PAGES READ**
- **RECORDS REQUESTED / PAGES READ**
- **RECORDS REQUESTED / RECORDS**
- **BECOMING CURRENT**
- **CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE**
- **VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE**

ONLINE--The accumulated value of COUNTS and RATIOS for all run-units that executed online during the time interval. Also, for COUNTS, the PERCENTAGE OF SYSTEM OCCURRENCES is shown.

BATCH--The accumulated value of COUNTS and RATIOS for all run-units that executed batch during the time interval. Also, for COUNTS, the % OF SYSTEM OCCURRENCES is shown.

SYSTEM--The accumulated value of COUNTS and RATIOS for all run-units that executed during the time interval.

ACCUMULATED VALUE--Total value for all run-unit occurrences within the reported time interval.

% OF SYSTEM OCCURRENCES--For ONLINE and BATCH, this ratio (expressed as a percentage) is the accumulated value for this COUNT against the accumulated value for all selected (SYSTEM) run-units active within the reported time interval. This highlights the run-units that are consuming the largest amount of system resources.

```
COMPUTER ASSOCIATES                                    CA-IDMS/LOG ANALYZER                                    PAGE nn
mm/dd/yy                                                  PROGRAM REPORT                                    hh:mm:ss

                                                          GRAND SUMMARY
                                                 mm/dd/yy  hh:mm - mm/dd/yy hh:mm:ss

----------CATEGORY-------------                 -----ONLINE------     ------BATCH------    ------SYSTEM------

RUNUNITS.................TOTAL                        67    100.00           0       .00           67

COUNTS...................PAGES READ                3,353    100.00           0       .00        3,353
                         PAGES WRITTEN                 6    100.00           0       .00            6
                         PAGES REQUESTED          13,129    100.00           0       .00       13,129
                         CALC RCDS ON HOME PAGE        3    100.00           0       .00            3
                         CALC RCDS OVERFLOW            0       .00           0       .00            0
                         VIA RCDS ON OWNER PAGE        6    100.00           0       .00            6
                         VIA RCDS OVERFLOW             0       .00           0       .00            0
                         RECORDS REQUESTED        13,219    100.00           0       .00       13,129
                         RECORDS BECOMING CURRENT  4,389    100.00           0       .00        4,389
                         CALLS TO IDMSDBMS         2,166    100.00           0       .00        2,166
                         FRAGMENTS STORED              0       .00           0       .00            0
                         ROOTS OR RCDS RELOCATED       0       .00           0       .00            0
                         TOTAL I/O                 3,359    100.00           0       .00        3,359
                         TOTAL CPU (100THS SEC)    2,085    100.00           0       .00        2,085

RATIOS...................PAGES REQUESTED / PAGES READ          3.92                    .00                     3.92
                         RECORDS REQUESTED / PAGES READ        3.94                    .00                     3.94
                         RECORDS REQUESTED / RECORDS BECOMING CURRENT   3.01           .00                     3.01
                         CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE     .00           .00                      .00
                         VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE      .00           .00                      .00
```

Figure 2-11. Program Grand Summary Report

2.6.4 Program Grand Summary Report

CA-IDMS/Log Analyzer automatically produces a Program Grand Summary Report whenever multiple time intervals are selected (i.e., when the INTERVAL is less than the entire START STOP DATE/TIME period.) This report is a total of all Program System Summaries.

2.6.4.1 Program Grand Summary Report Fields

The report fields for the Program Grand Summary Report are identical to those on the Program System Summary Report. See 2.6.3, “Program System Summary Report” on page 2-25 for a description of these fields. Figure 2-11 shows an example of a Program Grand Summary Report.

INTERVAL--This line lists the start and stop date/time of the time interval being reported. The data displayed in this line depends on what you selected using the START and STOP parameters.

RUN-UNITS TOTAL --Total number of run-units terminated within the reported time interval.

COUNTS--The IDMS STATISTICS are reported. For a detailed explanation of CA-IDMS statistics, see 2.6.2, “Program Summary Report” on page 2-23.

- **PAGES READ**
- **PAGES WRITTEN**

- **PAGES REQUESTED**
- **CALC RCDS ON HOME PAGE**
- **CALC RCDS OVERFLOW**
- **VIA RCDS ON OWNER PAGE**
- **VIA RCDS OVERFLOW**
- **RECORDS REQUESTED**
- **RECORDS BECOMING CURRENT**
- **CALLS TO IDMSDBMS**
- **FRAGMENTS STORED**
- **ROOTS OR RCDS RELOCATED**

TOTAL I/O--Total number of input/output operations performed during the time interval.

TOTAL CPU (100THS SEC)--Total CPU time used during the time interval, reported in units of 1/100 seconds.

RATIOS--A list of five ratios follows. For a detailed explanation of the ratios, see 2.6.2, “Program Summary Report” on page 2-23.

- **PAGES REQUESTED / PAGES READ**
- **RECORDS REQUESTED / PAGES READ**
- **RECORDS REQUESTED / RECORDS BECOMING CURRENT**
- **CALC RCDS OVERFLOW / CALC RCDS HOME PAGE**
- **VIA RCDS OVERFLOW / VIA RCDS ON HOME PAGE**

ONLINE--The accumulated value of COUNTS and RATIOS for all run-units that executed online during the time interval. Also, for COUNTS, the PERCENTAGE OF SYSTEM OCCURRENCES is shown.

BATCH--The accumulated value of COUNTS and RATIOS for all run-units that executed batch during the time interval. Also, for COUNTS, the % OF SYSTEM OCCURRENCES is shown.

SYSTEM--The accumulated value of COUNTS and RATIOS for all run-units that executed during the time interval.

ACCUMULATED VALUE--Total value for all run unit occurrences within the reported time interval.

% OF SYSTEM OCCURRENCES--For ONLINE and BATCH, this ratio (expressed as a percentage)

is the accumulated value for this COUNT against the accumulated value for all selected (SYSTEM) run-units active within the reported time interval. This highlights the run-units that are consuming the largest amount of system resources.

2.7 About CA-IDMS/Log Analyzer Management Reports

There are three types of Management Reports: Highlights/Summaries (three reports), Highlights/Buffer Pool Utilization Report, and the Ranking Report (one report each).

Highlights/Summaries are produced at three levels of detail:

- HIGHLIGHTS/SUMMARIES
  - Highlights Program Summary
  - Highlights System Summary
  - Highlights Grand Summary
- HIGHLIGHTS/BUFFER POOL UTILIZATION
- RANKING REPORT

Highlights/Summary Reports--These reports are summaries of system performance and resource consumption derived from the Program Report.

Highlights/Summary Reports present totals, highest, lowest, means, and medians of program attributes and program consumption (IDMS STATISTICS). These are presented at program summary, system summary, and grand summary levels. You will get this report by specifying REPORT = HI-SUM on the parameter statement.

Highlights/Buffer Pool Utilization Report--This report presents the number of run-units (and percentage of the total that these represent) falling into each of several categories as viewed by Buffer Pool Ratio (PAGES REQUESTED divided by PAGES READ) for each hour of each day within the time period you selected. You will get this report by specifying REPORT = HI-BPU on the parameter statement.

Ranking Report--This report type also uses system performance and resource consumption information derived from the Program Details Report.

However, the Ranking Report presents the information in ranked order, rather than in summarized form.

You designate the run-unit category to be selected for ranking, the particular attribute to be ranked, and value type of ranking process to be used.

For example, you may specify that all online run-units are to be ranked by the median value of their pages read, that this information be presented in a highest to lowest sequence and that you only want to see the first 10 run-units sequenced in this way. You will get this report by specifying REPORT = RANK on the parameter statement.

2.7.1 Three Highlights/Summary Reports--One Set of CA-IDMS Statistics

Physically, there are three Highlights/Summary Reports to choose from. However, it is important to understand that each report is produced from the same statistics as found on the CA-IDMS Log. Statistics are presented in different formats and at different levels of summarization. The Highlights/Summary Report is available at the program, system, and grand summary level.

2.7.2 Hierarchical Nature of Highlights/Summary Reports

Highlights/Summary Reports are produced on a hierarchical basis: if you ask for the lowest level report (LEVEL = PROGRAM), you will also receive the higher-level reports. These would include the Highlights/Summary System Report, which summarizes the Highlights/Summary Program Report (LEVEL = SYSTEM) and possibly the Highlights/Summary Grand Report. The Grand Report is produced if there are multiple intervals within the reported period, or if the report is explicitly requested (LEVEL = GRAND).

2.7.3 Management Highlights/Program Summary Report

The Highlights/Program Summary Report provides a summary of system performance and database resource consumption for an individual program within a single time interval. You will get this report if you specified LEVEL = PROGRAM on the parameter statement.

```
COMPUTER ASSOCIATES                          CA-IDMS/LOG ANALYZER                          PAGE nn
mm/dd/yy                          MANAGEMENT HEIGHLIGHTS/PROGRAM REPORT                    hh:mm:ss
                                       mm/dd/yy  hh:mm - mm/dd/yy hh:mm:ss

RUNUNITS.............TOTAL                                    1

                                                  LOWEST          HIGHEST          MEAN          MEDIAN

COUNTS..............PAGES READ                        5                5          5.00               5
                    PAGES WRITTEN                    0                0           .00               0
                    PAGES REQUESTED                 52               52         52.00              52
                    CALC RCDS ON HOME PAGE           0                0           .00               0
                    CALC RCDS OVERFLOW               0                0           .00               0
                    VIA RCDS ON OWNER PAGE           0                0           .00               0
                    VIA RCDS OVERFLOW                0                0           .00               0
                    RECORDS REQUESTED               52               52         52.00              52
                    RECORDS BECOMING CURRENT        18               18         18.00              18
                    CALLS TO IDMSDBMS                0                0           .00               0
                    FRAGMENTS STORED                 0                0           .00               0
                    ROOTS OR RCDS RELOCATED          0                0           .00               0
                    TOTAL I/O                        5                5          5.00               5
                    TOTAL CPU (100THS SEC)           9                9          9.00               9

RATIOS..............PAGES REQUESTED / PAGES READ                10.40            10.40         10.40           10.40
                    RECORDS REQUESTED / PAGES READ               10.40            10.40         10.40           10.40
                    RECORDS REQUESTED / RECORDS BECOMING CURRENT 2.89              2.89          2.89            2.89
                    CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE   .00               .00           .00             .00
                    VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE    .00               .00           .00             .00
```

Figure 2-12. Management Highlights/Program Summary Report

2.7.3.1 Management Highlights/Program Summary Report Fields

These fields make up the Management Highlights/Program Summary Report. See Figure 2-12 on page 2-32.

REPORT TITLE--This line lists the title of the report.

PROGRAM NAME/TYPE/INTERVAL--This line lists the name of the application program whose run-units are selected for reporting, its processing type (whether the run-units are ONLINE or BATCH), and start/stop date and time of report.

RUN UNITS TOTAL--Total number of run-units terminated within the reported time interval.

LOWEST--Lowest value encountered for any run-unit within the reported time interval.

HIGHEST--Highest value encountered for any run-unit within the reported time interval.

MEAN--Average value for all run-units within the reported time interval.

MEDIAN--Median value for all run-units within the reported time interval.

COUNTS--The IDMS STATISTICS (taken from the log record) are reported.

- **PAGES READ**--Number of pages read from the database.
- **PAGES WRITTEN**--Number of pages written to the database.
- **PAGES REQUESTED**--Number of pages requested from the database.
- **CALC RCDS ON HOME PAGE**--Number of CALC records stored on the home page.
- **CALC RCDS OVERFLOW**--Number of CALC records stored on an overflow page.
- **VIA RCDS ON OWNER PAGE**--Number of VIA records stored on the owner page.
- **VIA RCDS OVERFLOW**--Number of VIA records stored on an overflow page.
- **RECORDS REQUESTED**--Number of records requested.
- **RECORDS BECOMING CURRENT**--Number of records made current of run-unit.
- **CALLS TO IDMSDBMS**--Number of DML verbs executed.
- **FRAGMENTS STORED**--Number of record fragments stored.
- **ROOTS OR RCDS RELOCATED**--Number of records relocated because of fragment recomposition.

TOTAL I/O--Total number of database input/output operations performed by the program during the time interval.

TOTAL CPU (100THS SEC)--Total CPU time used by the program during the time interval specified.

RATIOS--The Ratios are reported in four values: Lowest, Highest, Mean, and Median.

- **PAGES REQUESTED / PAGES READ**--This ratio measures the effectiveness of buffer pool size and allocation. Small ratios (less than 2.00) can indicate random processing, inadequate buffer pool size, or the need for additional buffer pools. A ratio of 20 is generally considered high.
- **RECORDS REQUESTED / PAGES READ**-- This ratio measures the overall effectiveness of space management, CALC synonym handling, VIA options, and buffer management. Large ratios usually indicate effective buffering (i.e., the minimizing of database I/O). A ratio of 20 is generally considered high.
- **RECORDS REQUESTED / RECORDS BECOMING CURRENT**--This ratio measures the amount of processing transparency provided by CA-IDMS. High ratios (a ratio of 20 is generally considered high) indicate that an excessive amount of database traversing is occurring before target records are retrieved. Pay close attention to sorted sets, sets without PRIOR or OWNER pointers, or program strategy that does not use currency efficiently.
- **CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE**--This ratio measures the randomness of the CALC field values, or how full particular database areas are. Large ratios or steadily rising ratio values show that there are either a large number of CALC synonyms, or that space may be getting scarce and that one or more areas may need to be enlarged. Ideally, this field will show ratios of less than one (1).
- **VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE**--This ratio measures the effectiveness of the storage of VIA records, or how full database areas are. Large ratios or steadily increasing ratio values can show that there is a lack of clustering or packing of VIA records (near the associated OWNER record), or a lack of randomness of the OWNER record types of VIA member records. Space may be getting scarce and one or more areas may need to be enlarged. Ideally, this ratio will show values of less than one (1).

2.7.4 Management Highlights/System Summary Report

```
COMPUTER ASSOCIATES                                    CA-IDMS/LOG ANALYZER                                    PAGE nn
mm/dd/yy                                  MANAGEMENT HEIGHLIGHTS/SYSTEM SUMMARY                            hh:mm:ss
                                           mm/dd/yy  hh:mm - mm/dd/yy hh:mm:ss

                                                                    ONLINE            BATCH              SYSTEM

RUN UNITS..............TOTAL                                    2  100.00         0   .00              2


RATIOS.....................PAGES REQUESTED / PAGES READ          LOWEST     5.00              .00              5.00
                                                                HIGHEST    5.00              .00              5.00
                                                                MEAN       5.00              .00              5.00

                          RECORDS REQUESTED / PAGES READ        LOWEST     8.00              .00              8.00
                                                                HIGHEST    9.00              .00              9.00
                                                                MEAN       8.50              .00              8.50

                          RECORDS REQUESTED / RECORDS BECOMING CURRENT LOWEST     2.67              .00              2.67
                                                                HIGHEST    3.00              .00              3.00
                                                                MEAN       2.84              .00              2.84

                          CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE LOWEST      .00              .00              .00
                                                                HIGHEST     .00              .00              .00
                                                                MEAN        .00              .00              .00

                          VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE LOWEST      .00              .00              .00
                                                                HIGHEST     .00              .00              .00
                                                                MEAN        .00              .00              .00
```

Figure 2-13. Management Highlights/System Summary Report (page 1)

```
COMPUTER ASSOCIATES                                CA-IDMS/LOG ANALYZER                                PAGE nn
mm/dd/yy                                MANAGEMENT HEIGHLIGHTS/SYSTEM SUMMARY                       hh:mm:ss
                                         mm/dd/yy  hh:mm - mm/dd/yy hh:mm:ss

                                                                ONLINE              BATCH              SYSTEM

COUNTS...................PAGES READ                  LOWEST          2                  0                   2
                                                    -HIGHEST          2                  0                   2
                                                    --MEAN         2.00                .00                2.00
                         PAGES WRITT                LOWEST          0                  0                   0
                                                    -HIGHEST          0                  0                   0
                                                    --MEAN          .00                .00                 .00
                         PAGES REQUESTED            LOWEST         10                  0                  10
                                                    -HIGHEST         10                  0                  10
                                                    --MEAN        10.00                .00               10.00
                         CALC RCDS ON HOME PAGE     LOWEST          0                  0                   0
                                                    -HIGHEST          0                  0                   0
                                                    --MEAN          .00                .00                 .00
                         CALC RCDS OVERFLOW         LOWEST          0                  0                   0
                                                    -HIGHEST          0                  0                   0
                                                    --MEAN          .00                .00                 .00
                         VIA RCDS ON OWNER PAGE     LOWEST          0                  0                   0
                                                    -HIGHEST          0                  0                   0
                                                    --MEAN          .00                .00                 .00
                         VIA RCDS OVERFLOW          LOWEST          0                  0                   0
                                                    -HIGHEST          0                  0                   0
                                                    --MEAN          .00                .00                 .00
                         RECORDS REQUESTED          LOWEST         16                  0                  16
                                                    -HIGHEST         18                  0                  18
                                                    --MEAN        17.00                .00               17.00
                         RECORDS BECOMING CURRENT    LOWEST          6                  0                   6
                                                   -HIGHEST          6                  0                   6
                                                    --MEAN        16.00                .00               16.00
                         CALLS TO IDMSDBMS           LOWEST          6                  0                   6
                                                    -HIGHEST          7                  0                   7
                                                    --MEAN         6.50                .00                6.50
                         FRAGMENTS STORED            LOWEST          0                  0                   0
                                                    -HIGHEST          0                  0                   0
                                                    --MEAN          .00                .00                 .00
                         ROOTS OR RCDS RELOCATED     LOWEST          0                  0                   0
                                                    -HIGHEST          0                  0                   0
                                                    --MEAN          .00                .00                 .00
                         TOTAL I/O                   LOWEST          2                  0                   2
                                                    -HIGHEST          2                  0                   2
                                                    --MEAN         2.00                .00                2.00
                         TOTAL CPU(100THS SEC)       LOWEST          5                  0                   5
                                                    -HIGHEST         59                  0                  59
                                                    --MEAN        32.00                .00               32.00
```

Figure 2-14. Management Highlights/System Summary Report (page 2)

This report, a summary of system performance and resource consumption, is derived from the Program Report. The Highlights/System Summary Report gives you a summary of system performance and resource consumption accumulated for one time interval. This report presents highest, lowest, and means of program attributes, lists them under ONLINE, BATCH, and SYSTEM categories, for program consumption (IDMS STATISTICS). You will get this report if you select LEVEL = SYSTEM on the parameter statement. In addition, you will also receive all higher-level reports. When you look at this report, focus on the COUNTS (IDMS STATISTICS) and RATIOS. These statistics reveal the trends on the vitality of your database environment.

2.7.4.1 Management Highlights/System Summary Report Fields

These fields make up the two-page Highlights/System Summary Report. See Figure 2-13 on page 2-35 and Figure 2-14 on page 2-36.

REPORT TITLE--This line lists the title of the report.

INTERVAL--This line lists the start/stop date and time of the report.

RUN UNITS TOTAL--Number of run-units that terminated during this time interval.

RATIOS--The Ratios are reported in three values (LOWEST, HIGHEST, MEAN) in three categories (ONLINE, BATCH, SYSTEM). See 2.6.2.1, "Program Summary Report Fields" on page 2-23 for a complete description of the ratios.

- **PAGES REQUESTED / PAGES READ**
- **RECORDS REQUESTED / PAGES READ**
- **RECORDS REQUESTED / RECORDS**
- **BECOMING CURRENT**
- **CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE**
- **VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE**

COUNTS--IDMS STATISTICS are reported in three values: LOWEST, HIGHEST, and MEAN. For a detailed explanation of CA-IDMS statistics, see 2.6.2.1, "Program Summary Report Fields" on page 2-23.

- **PAGES READ**
- **PAGES WRITTEN**
- **PAGES REQUESTED**
- **CALC RCDS ON HOME PAGE**
- **CALC RCDS OVERFLOW**
- **VIA RCDS ON OWNER PAGE**
- **VIA RCDS OVERFLOW**
- **RECORDS REQUESTED**
- **RECORDS BECOMING CURRENT**
- **CALLS TO IDMSDBMS**
- **FRAGMENTS STORED**
- **ROOTS OR RCDS RELOCATED**

TOTAL I/O--Total number of database input/output operations the run-unit performed during the time interval.

TOTAL CPU (100THS SEC)--Total CPU time needed to execute the run-unit during the time interval specified.

LOWEST--Lowest value encountered for run-unit within the reported time interval.

HIGHEST--Highest value encountered for run-unit within the reported time interval.

MEAN--Average value for run-unit within the reported time interval.

ONLINE--Shows the LOWEST, HIGHEST, and MEAN RATIOS and COUNTS for all ONLINE run-units during the time interval.

BATCH--Shows the LOWEST, HIGHEST, and MEAN RATIOS and COUNTS for all BATCH run-units during the time interval.

SYSTEM--Shows the LOWEST, HIGHEST, and MEAN RATIOS and COUNTS for all run-units during the time interval.

2.7.5 Management Highlights/Grand Summary Report

```
COMPUTER ASSOCIATES                                    CA-IDMS/LOG ANALYZER                                  PAGE nn
mm/dd/yy                                      MANAGEMENT HEIGHLIGHTS/GRAND SUMMARY                       hh:mm:ss
                                               mm/dd/yy  hh:mm - mm/dd/yy hh:mm:ss

                                                                      ONLINE              BATCH              SYSTEM

RUN UNITS.................TOTAL                                       67  100.00          0   .00             67


RATIOS....................PAGES REQUESTED / PAGES READ              LOWEST       .00                .00               .00
                                                                    HIGHEST     1.00                .00             21.00
                                                                    MEAN        6.45                .00              6.45

                         RECORDS REQUESTED / PAGES READ             LOWEST       .00                .00               .00
                                                                    HIGHEST    21.00                .00             21.00
                                                                    MEAN        6.78                .00              6.78

                         RECORDS REQUESTED / RECORDS BECOMING CURRENT LOWEST      .00                .00               .00
                                                                    HIGHEST    33.27                .00             33.27
                                                                    MEAN        2.55                .00              2.55

                         CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE LOWEST       .00                .00               .00
                                                                    HIGHEST      .00                .00               .00
                                                                    MEAN         .00                .00               .00

                         VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE  LOWEST       .00                .00               .00
                                                                    HIGHEST      .00                .00               .00
                                                                    MEAN         .00                .00               .00
```

Figure 2-15. Management Highlights/Grand Summary Report (page 1)

```
COMPUTER ASSOCIATES                                CA-IDMS/LOG ANALYZER                                PAGE nn
mm/dd/yy                                  MANAGEMENT HEIGHLIGHTS/GRAND SUMMARY                         hh:mm:ss
                                          mm/dd/yy  hh:mm - mm/dd/yy  hh:mm:ss

                                                                ONLINE              BATCH              SYSTEM

COUNTS...................PAGES READ                 LOWEST        0                   0                   0
                                                   -HIGHEST  2,008                   0               2,008
                                                   --MEAN       50.04                 .00                50.04
                        PAGES WRITTEN              LOWEST        0                   0                   0
                                                   -HIGHEST      4                   0                   4
                                                   --MEAN         .09                .00                 .09
                        PAGES REQUESTED            LOWEST        0                   0                   0
                                                   -HIGHEST  2,434                   0               2,434
                                                   --MEAN      195.96                .00              195.96
                        CALC RCDS ON HOME PAGE     LOWEST        0                   0                   0
                                                   -HIGHEST      2                   0                   2
                                                   --MEAN         .04                .00                 .04
                        CALC RCDS OVERFLOW         LOWEST        0                   0                   0
                                                   -HIGHEST      0                   0                   0
                                                   --MEAN         .00                .00                 .00
                        VIA RCDS ON OWNER PAGE     LOWEST        0                   0                   0
                                                   -HIGHEST      2                   0                   4
                                                   --MEAN         .09                .00                 .09
                        VIA RCDS OVERFLOW          LOWEST        0                   0                   0
                                                   -HIGHEST      0                   0                   0
                                                   --MEAN         .00                .00                 .00
                        RECORDS REQUESTED          LOWEST        0                   0                   0
                                                   -HIGHEST  2,462                   0               2,462
                                                   --MEAN      197.30                .00              197.30
                        RECORDS BECOMING CURRENT   LOWEST        0                   0                   0
                                                   -HIGHEST    468                   0                 468
                                                   --MEAN       65.51                .00               65.51
                        CALLS TO IDMSDBMS          LOWEST        0                   0                   0
                                                   -HIGHEST    299                   0                 299
                                                   --MEAN       32.33                .00               32.33
                        FRAGMENTS STORED           LOWEST        0                   0                   0
                                                   -HIGHEST      0                   0                   0
                                                   --MEAN         .00                .00                 .00
                        ROOTS OR RCDS RELOCATED    LOWEST        0                   0                   0
                                                   -HIGHEST      0                   0                   0
                                                   --MEAN         .00                .00                 .00
                        TOTAL I/O                  LOWEST        0                   0                   0
                                                   -HIGHEST  2,008                   0               2,008
                                                   --MEAN       50.13                .00               50.13
                        TOTAL CPU(100THS SEC)      LOWEST        1                   0                   1
                                                   -HIGHEST    247                   0                 247
                                                   --MEAN       31.12                .00               31.12
```

Figure 2-16. Management Highlights/Grand Summary Report (page 2)

The Highlights/Grand Summary Report contains summarized information of system performance and resource consumption accumulated for all System Summaries whenever multiple time intervals are reported.

2.7.5.1 Management Highlights/Grand Summary Report Fields

These fields make up the Management Highlights/Grand Summary Report. See Figure 2-15 on page 2-38 and Figure 2-16.

REPORT TITLE--This lists the title of the report.

INTERVAL--This line lists the interval and start/stop date and time of report.

RUN UNITS TOTAL--Total number of run-units terminated within the reported time interval.

RATIOS--are reported in three values: LOWEST, HIGHEST, and MEAN. For a detailed explanation of the ratios, see 2.6.2.1, “Program Summary Report Fields” on page 2-23.

- **PAGES REQUESTED / PAGES READ**
- **RECORDS REQUESTED / PAGES READ**
- **RECORDS REQUESTED / RECORDS BECOMING CURRENT**
- **CALC RCDS OVERFLOW / CALC RCDS ON HOME PAGE**
- **VIA RCDS OVERFLOW / VIA RCDS ON OWNER PAGE**

COUNTS--IDMS STATISTICS are reported in three values: LOWEST, HIGHEST, and MEAN. For a detailed explanation of CA-IDMS statistics, see 2.6.2.1, “Program Summary Report Fields” on page 2-23.

- **PAGES READ**
- **PAGES WRITTEN**
- **PAGES REQUESTED**
- **CALC RCDS ON HOME PAGE**
- **CALC RCDS OVERFLOW**
- **VIA RCDS ON OWNER PAGE**
- **VIA RCDS OVERFLOW**
- **RECORDS REQUESTED**
- **RECORDS BECOMING CURRENT**
- **CALLS TO IDMSDBMS**
- **FRAGMENTS STORED**
- **ROOTS OR RCDS RELOCATED**

TOTAL I/O--Total number of database input/output operations the run-unit performed during the time interval.

TOTAL CPU (100THS SEC)--Total CPU time needed to execute the run-unit during the time interval specified.

LOWEST--Lowest value encountered for run-unit within the reported time interval.

HIGHEST--Highest value encountered for run-unit within the reported time interval.

MEAN--Average value for run-unit within the reported time interval.

ONLINE--Shows the LOWEST, HIGHEST, and MEAN RATIOS and COUNTS for all ONLINE run-units during the time interval.

BATCH--Shows the LOWEST, HIGHEST, and MEAN RATIOS and COUNTS for all BATCH run-units during the time interval.

SYSTEM--Shows the LOWEST, HIGHEST, and MEAN RATIOS and COUNTS for all run-units during the time interval.

2.7.6 Management Highlights/Buffer Pool Utilization Report

The Highlights/Buffer Pool Utilization Report distributes the ratio of PAGES REQUESTED to PAGES READ into time brackets for system activity on the calendar days you specify.

COMPUTER ASSOCIATES — CA-IDMS/LOG ANALYZER — PAGE nn
mm/dd/yy — MANAGEMENT HIGHLIGHTS/BUFFER POOL UTILIZATION — hh:mm:ss
mm/dd/yy

HOUR	0.00 - 0.99	1.00 - 1.99	2.00 - 3.99	4.00 - 7.99	8.00 - 15.99	16.00 -	TOTAL	MEAN RATIO	MEDN RATIO
0:00	0 .00	0 .00	0 .00	3 .50	3 .50	0 .00	6	6.90	5.76
7:00	0 .00	1 .50	0 .00	0 .00	1 .50	0 .00	2	6.19	1.38
9:00	0 .00	0 .00	1 1.00	0 .00	0 .00	0 .00	1	2.50	2.50
11:00	1 1.00	0 .00	0 .00	0 .00	0 .00	0 .00	1	.00	.00
12:00	1 .50	0 .00	1 .50	0 .00	0 .00	0 .00	2	1.00	.00
13:00	4 .50	1 .13	2 .25	1 .13	0 .00	0 .00	8	1.50	.00
14:00	3 .30	0 .00	0 .00	5 .50	2 .20	0 .00	10	4.95	5.75
15:00	92 .56	0 .00	2 .01	14 .09	27 .17	28 .17	163	9.64	.00
16:00	169 .50	0 .00	16 .05	30 .09	56 .17	66 .20	337	11.19	.00
18:00	1 .20	0 .00	0 .00	0 .00	4 .80	0 .00	5	8.16	10.09
19:00	1 .25	0 .00	0 .00	3 .75	0 .00	0 .00	4	4.12	5.00
20:00	0 .00	0 .00	0 .00	3 1.00	0 .00	0 .00	3	6.00	6.53
21:00	0 .00	0 .00	0 .00	2 .50	2 .50	0 .00	4	7.47	4.31
22:00	0 .00	0 .00	0 .00	1 1.00	0 .00	0 .00	1	6.13	6.13
TOTAL	272 .50	2 .00	22 .04	62 .11	95 .17	94 .17	547	10.19	*

Figure 2-17. Management Highlights/Buffer Pool Utilization Report

2.7.6.1 Management Highlights/Buffer Pool Utilization Report Fields

These fields make up the Management Highlights/Buffer Pool Utilization Report. See Figure 2-17.

DATE--The 24-hour period (from midnight to midnight) monitored by CA-IDMS/Log Analyzer to produce this report.

HOUR--Buffer Pool Utilization (BPU) statistics by hour (using the 24-hour clock) for the day the report was generated. This report line will not appear if no run-units terminated during a particular hour.

The next six columns--contain six BPU ranges into which all run-units are grouped.

- The number of run-units with a BPU ratio within the given range. The percentage that this number of run-units is of the total run-units.

TOTAL--Number of run-units reported during the particular hour.

MEAN RATIO--Average ratio value of run-units reported.

MEDN RATIO--Median ratio value of run-units reported.

TOTAL--Total number of run-units and percentage reported within each range for a given day.

2.7.7 Management Ranking Report

The Ranking Report uses system performance and resource consumption information derived from the original Program Details Report. Statistics are ranked under ABSOLUTE, MEDIAN, or MEAN, depending on the RANKVALU parameter you select.

Unlike the Program Details Report, however, which contains information for all attributes of a run-unit presented in time sequence, the Ranking Report presents the specific run-unit attribute you select, in the sequence you specify. You may also specify whether the ABSOLUTE value of the attribute is to be ranked or whether to rank the MEAN or MEDIAN occurrence of the attribute.

You will get this report if you specify REPORT = RANK on the parameter statement.

```
COMPUTER ASSOCIATES                          CA-IDMS/LOG ANALYZER                          PAGE nn
mm/dd/yy                                      MANAGEMENT RANKINGS                          hh:mm:ss
                                    mm/dd/yy  hh:mm - mm/dd/yy  hh:mm
                  THE FIRST 20 SYSTEM WHEN RANKED HIGHEST TO LOWEST BY ABSOLUTE TOTAL I/O

                 RANK                          PROGRAM                VALUE

                  1                      IDMSCHEM   BTC              11,288
                  2                      IDMSDMLX   BTC              11,279
                  3                      IDMSCHEM   BTC              11,132
                  4                      IDMSCHEM   BTC              11,116
                  5                      IDMSCHEM   BTC               9,480
                  6                      IDMSCHEM   BTC               9,454
                  7                      IDMSCHEM   BTC               9,058
                  8                      IDMSCHEM   BTC               9,050
                  9                      IDMSCHEM   BTC               9,046
                 10                      IDMSCHEM   BTC               8,572
                 11                      IDMSCHEM   BTC               8,206
                 12                      IDMSCHEM   BTC               8,044
                 13                      IDMSCHEM   BTC               7,932
                 14                      IDMSCHEM   BTC               7,901
                 15                      IDMSDMLX   BTC               7,761
                 16                      IDMSCHEM   BTC               5,806
                 17                      IDMSUBSC   BTC               5,791
                 18                      IDMSUBSC   BTC               5,256
                 19                      IDMSUBSC   BTC               5,180
                 20                      USJDXS     BTC               5,036
```

Figure 2-18. Management Ranking Report (ABSOLUTE Value Type)

```
COMPUTER ASSOCIATES                          CA-IDMS/LOG ANALYZER                          PAGE nn
mm/dd/yy                                      MANAGEMENT RANKINGS                          hh:mm:ss
                                    mm/dd/yy  hh:mm - mm/dd/yy  hh:mm
                          ALL ONLINE WHEN RANKED HIGHEST TO LOWEST BY MEDIAN TOTAL I/O

                        RANK                          PROGRAM                VALUE

                         1                          DMLO       ONL            87
                         2                          MAX        ONL            10
                         3                          ICD        ONL             4
                         4                          D000       ONL             4
                         5                          DCMT       ONL             2
                         6                          OFF        ONL             2
                         7                          SIGNON     ONL             2
                         8                          SIGNOFF    ONL             1
                         9                          CPUX       ONL             1
                        10                          MENU       ONL             1
                        11                          *NULL LV   ONL             1
                        12                          MKTG       ONL             0
                        13                          POSI       ONL             0
                        14                          ENTR       ONL             0
                        15                          CONT       ONL             0
                        16                          SOFT       ONL             0
```

Figure 2-19. Management Ranking Report (MEDIAN Value Type)

```
COMPUTER ASSOCIATES                          CA-IDMS/LOG ANALYZER                          PAGE nn
mm/dd/yy                                      MANAGEMENT RANKINGS                          hh:mm:ss
                                    mm/dd/yy  hh:mm - mm/dd/yy  hh:mm
                  THE FIRST 20 SYSTEM WHEN RANKED HIGHEST TO LOWEST BY TOTAL CPU (100THS SEC)

                        RANK                          PROGRAM                VALUE

                         1                        IDMSDMLX   BTC             17.1
                         2                        ICDWPL01   ONL             15.1
                         3                        ICDWPL02   ONL              9.6
                         4                        SCHEMA     ONL              8.6
                         5                        DMLO       ONL              8.1
                         6                        RHSCMPUT   BTC              3.1
                         7                        QUED       ONL              2.5
                         8                        IDMSDDDL   BTC              2.4
                         9                        ASF        ONL              2.0
                        10                        ADSOAPCH   BTC              2.0
                        11                        USSCMPR    BTC              1.7
                        12                        $-NULL-$   ONL              1.5
                        13                        ICDPRT01   ONL              1.3
                        14                        USMEXTR    BTC              1.3
                        15                        ADSG       ONL              1.1
                        16                        USBCOMP    BTC              0.9
                        17                        ICDWAR01   ONL              0.7
                        18                        USMVALD    BTC              0.7
                        19                        IDMSDMCL   BTC              0.7
                        20                        OLQ        ONL              0.5
```

Figure 2-20. Management Ranking Report (MEAN Value Type)

2.7.7.1 Management Ranking Report Fields

These fields make up the three types of Management Ranking Reports. Note that the three sample reports shown (see Figure 2-18 on page 2-42, Figure 2-19 on page 2-43, Figure 2-20 on page 2-43) are identical except for the MEAN, MEDIAN, and ABSOLUTE headings. The report fields defined below are valid for all three versions of the Management Ranking Report.

Start and stop date/time of the report.

Description of report function. The Management Ranking Report reflects the parameter choices you made: the type of ranking process used (RANKHOW); the number of items to be ranked (RANK#); run-unit attribute to be ranked (RANKWHAT), etc.

RANK--Ranking of run-unit or program as determined by CA-IDMS/Log Analyzer.

PROGRAM--Program name and processing type. BATCH is represented by BTC; ONLINE is represented by ONL.

VALUE--Value of RANKVALU for the run-unit attribute, (seconds, percentage, etc.).

2.7.8 Audit Report

The Audit Report contains a list of the parameters input to CA-IDMS/Log Analyzer, all informative and error messages dynamically generated by CA-IDMS/Log Analyzer during execution, and also provides a summary of all processing that occurred.

```
COMPUTER ASSOCIATES                                    CA-IDMS/LOG ANALYZER                          PAGE nn
mm/dd/yy                                                   AUDIT REPORT                             hh:mm:ss

I001 - LOG ANALYZER . . . . . . . . . . . . . . . . . . . . . . . . . . . . STARTED  mm/dd/yy hh:mm:ss

I002 - INPUT PARAMETER STATEMENT  . . . . . . . . . . . . . . . . . . . . . PROCESS,CONT=N,IDMSXXXX=YES,RHDCRUAL=YES    00550001

I002 - INPUT PARAMETER STATEMENT  . . . . . . . . . . . . . . . . . . . . . REPORT=BILLING,LEVEL=DETAIL,RUNAME=TERM-ID  00560004

I012 - PARAMETER PROCESSING TOTALS  . . . . . . . . . . . . . . . . . . . . PARAMETER RECORDS READ            2
I012 - PARAMETER PROCESSING TOTALS  . . . . . . . . . . . . . . . . . . . . PROCESS STATEMENTS ENCOUNTERED    1
I012 - PARAMETER PROCESSING TOTALS  . . . . . . . . . . . . . . . . . . . . REPORT STATEMENTS ENCOUNTERED     1
I012 - PARAMETER PROCESSING TOTALS  . . . . . . . . . . . . . . . . . . . . UNRECOGNIZED STATEMENTS           0
I012 - PARAMETER PROCESSING TOTALS  . . . . . . . . . . . . . . . . . . . . COMMENT STATEMENTS ENCOUNTERED    0
I012 - PARAMETER PROCESSING TOTALS  . . . . . . . . . . . . . . . . . . . . VALID PROCESS STATEMENTS          1
I012 - PARAMETER PROCESSING TOTALS  . . . . . . . . . . . . . . . . . . . . VALID REPORT STATEMENTS          1
I012 - PARAMETER PROCESSING TOTALS  . . . . . . . . . . . . . . . . . . . . CONTINUATION STATEMENTS          0
I012 - PARAMETER PROCESSING TOTALS  . . . . . . . . . . . . . . . . . . . . PARAMETER STATEMENT ERRORS       0
I012 - PARAMETER PROCESSING TOTALS  . . . . . . . . . . . . . . . . . . . . TOTAL INDIVIDUAL ERRORS          0

I003 - PROCESSING OPTIONS . . . . . . . . . . . . . . . . . . . . . . . . . PROCESSING CONTINUES WITH THE VALID REPORT STATEMENTS
I003 - PROCESSING OPTIONS . . . . . . . . . . . . . . . . . . . . . . . . . IDMS RUN-UNITS WILL BE SELECTED
I003 - PROCESSING OPTIONS . . . . . . . . . . . . . . . . . . . . . . . . . DC INTERNAL RUN-UNITS WILL BE SELECTED
I004 - ARCHIVE RECORDS WILL BE PROCESSED FOR  . . . . . . . . . . . . . . . BILLING REPORTS

I005 - EXTRACT PROCESSING . . . . . . . . . . . . . . . . . . . . . . . . . STARTED  mm/dd/yy hh:mm:ss
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 1                    55
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 2                     0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 3                     0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 4                   349
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 5                 2,131
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-00                 1
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-01                 1
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-02                 1
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-03                 1
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-04                 1
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-05                 1
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-06                 1
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-07                 0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-08                 0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-09                 0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-10                 0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-11                 0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-12                 0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-13                 0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-14                 0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-15                 0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-16                 0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-17                 0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-18                 0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . 6-19                 0
```

Figure 2-21. Audit Report (page 1)

```
COMPUTER ASSOCIATES                                    CA-IDMS/LOG ANALYZER                          PAGE nn
mm/dd/yy                                                   AUDIT REPORT                              hh:mm:ss

I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-20                  0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-21                  0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-22                  0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-23                  0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-24                  0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-25                  0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-26                  2
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-27                  1
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-28                 26
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-29                125
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-30                951
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-31                  0
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-32                  2
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-33                 39
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-34                 41
I006 - ARCHIVE RECORDS PROCESSED FOR THIS TYPE. . . . . . . . . . . . . . . . 6-35                 34
I007 - TOTAL ARCHIVE RECORDS PROCESSED. . . . . . . . . . . . . . . . . . . .                    3,763
I008 - EXTRACT RECORDS WERE CREATED FOR . . . . . . . . . . . . . . . . . . . PROGRAM              0
I008 - EXTRACT RECORDS WERE CREATED FOR . . . . . . . . . . . . . . . . . . . HI-SUM               0
I008 - EXTRACT RECORDS WERE CREATED FOR . . . . . . . . . . . . . . . . . . . HI-BPU               0
I008 - EXTRACT RECORDS WERE CREATED FOR . . . . . . . . . . . . . . . . . . . RANK                0
I008 - EXTRACT RECORDS WERE CREATED FOR . . . . . . . . . . . . . . . . . . . BILLING             68
I009 - TOTAL EXTRACT RECORDS CREATED  . . . . . . . . . . . . . . . . . . . .                     68

I005 - EXTRACT PROCESSING . . . . . . . . . . . . . . . . . . . . . . . . . . ENDED    mm/dd/yy hh:mm:ss
I010 - REPORT PROCESSING  . . . . . . . . . . . . . . . . . . . . . . . . . . STARTED  mm/dd/yy hh:mm:ss

I011 - A REPORT WAS CREATED FOR YOUR PARAMETER  . . . . . . . . . . .  REPORT=BILLING,
                                                                       START=mmddyyhhmm,
                                                                       STOP=mmddyyhhmm,
                                                                       LEVEL=DETAILS,
                                                                       NAME=name,
                                                                       FILE=YES,
                                                                       RUTYPE=SYSTEM,
                                                                       RUNAME=TERM-ID

I013 - TOTAL RECORDS ADDED TO THE BILLING FILE  . . . . . . . . . . . . . .                       67

I010 - REPORT PROCESSING  . . . . . . . . . . . . . . . . . . . . . . . . . . ENDED    mm/dd/yy hh:mm:ss

I001 - Log Analyzer   . . . . . . . . . . . . . . . . . . . . . . . . . . . . ENDED    mm/dd/yy hh:mm:ss
```

Figure 2-22. Audit Report (page 2)

2.7.8.1 Audit Report Fields

These fields make up the CA-IDMS/Log Analyzer Audit Report. See Figure 2-21 on page 2-45 and Figure 2-22 This report and the fields that appear on the report vary, depending on the parameters input and what happened during execution of CA-IDMS/Log Analyzer.

Informative messages--Informative messages are indicated by an I at the beginning of the message number. See Chapter 6, “Messages” on page 6-1 for more information about informative messages.

Error messages--Error messages are indicated by an E at the beginning of each message number. See Chapter 6, “Messages” on page 6-1 for more information about error messages.

PROCESS parameters--The input PROCESS parameters are listed

REPORT parameters--The input REPORT parameters are listed under the message I002.

Extract phase--The extract phase of CA-IDMS/Log Analyzer is detailed by messages I005, I008, and I009.

Report phase--The report phase of CA-IDMS/Log Analyzer is detailed by messages I010 and I011

Counts for record types--CA-IDMS/Log Analyzer reports on records of type 6-28, the log task statistic record type. The log statistic records for CA-ADS dialogs are of type 6-34 and type 6-35. CA-IDMS/Log Analyzer reformats records of type 6-34 so that the new format is like the format of record type 6-28. Records of type 6-35 contain special CA-ADS information that is not needed by CA-IDMS/Log Analyzer.

Processing messages--The processing messages indicate the successful or unsuccessful completion of steps, or list processing errors.

Chapter 3. Parameters

3.1 Overview

This chapter describes the parameters needed to produce the CA-IDMS/Log Analyzer Reports. There are two primary parameters: PROCESS and REPORT. The COMMENTS option allows you to include notes, observations, or comments with parameter statements.

3.2 Parameters and Their Uses

Two pa=xmeters control CA-IDMS/Log Analyzer output: PROCESS and REPORT. The PROCESS parameter initiates CA-IDMS/Log Analyzer processing. The REPORT parameter specifies which CA-IDMS/Log Analyzer report is to be printed. The COMMENTS option gives you the ability to store comments, observations, or notes about certain reports and their uses with the parameter statements that request those reports.

3.2.1 PROCESS

The PROCESS parameter is mandatory and should precede all report parameters. It supplies certain global parameters that initiate all processing performed by CA-IDMS/Log Analyzer.

3.2.2 REPORT

The REPORT parameter specifies which type of CA-IDMS/Log Analyzer report is to be created and defines the data that is to be printed. Up to 20 reports can be requested for each execution of CA-IDMS/Log Analyzer.

3.2.3 COMMENTS Option

The COMMENTS option included in CA-IDMS/Log Analyzer is designed for your convenience and can be used at your discretion. When you place an asterisk (*) in the first column of a parameter statement, you can insert notes, observations, comments on reports and their uses, or any other information that will be helpful for future reference.

Note: CA-IDMS/Log Analyzer parameter syntax follows the notation conventions shown in Table 3-1 and syntax rules shown in Table 3-2 on page 3-5. Please review these conventions and rules.

Table 3-1 (Page 1 of 2). Notation Conventions for Parameter Statements

Example	Function
PROCESS	All keywords are written in UPPERCASE. Those portions of the keyword that must be entered are UNDERSCORED. When part of a keyword is not underscored, you may omit it without altering the meaning of the statement.
CONTINUE= YES	A keyword phrase is made up of a major keyword followed by an equal sign (=), followed by a minor keyword or a variable. A keyword phrase cannot be split between two parameter cards.

Table 3-1 (Page 2 of 2). Notation Conventions for Parameter Statements

Example	Function
INTERVAL=interval	Variables appear in lowercase italic. Substitute an appropriate value for each variable if the keyword phrase is required.
INTERVAL=60, RANK=45	Keyword phrases must be separated by a comma. All text between a keyword phrase and the next comma is ignored.
[,NAME=name]	Brackets indicate optional keyword phrases. If you omit the entire parameter, CA-IDMS/Log Analyzer will supply a default value.
←	Points to the default in a list of choices.
FILE= {NO YES←}	Braces enclose two or more options in a column. You must choose one of them.

Table 3-2. Parameter Syntax Rules

Item	Rule
Order of Parameter Statements	Parameter statements are free-form. They can be entered in any order.
Continuing a Parameter Statement	To continue a parameter statement onto the next card, key in a trailing comma.
Maximum Number of Reports Possible Per Execution	A total of 20 reports can be requested during each execution of CA-IDMS/Log Analyzer. This means you can choose 20 Program Detail Reports, for example, or any combination of reports and options available through CA-IDMS/Log Analyzer.
Entering Blanks on Parameter Statements	You can enter blanks (character spaces) to separate keywords to improve readability in a parameter statement without affecting the parameter. Do not enter blanks within a keyword or value field.
Positions of Keyword Phrases on Parameter Statements	All keyword phrases must be entered between positions 1 and 72 on each parameter card.

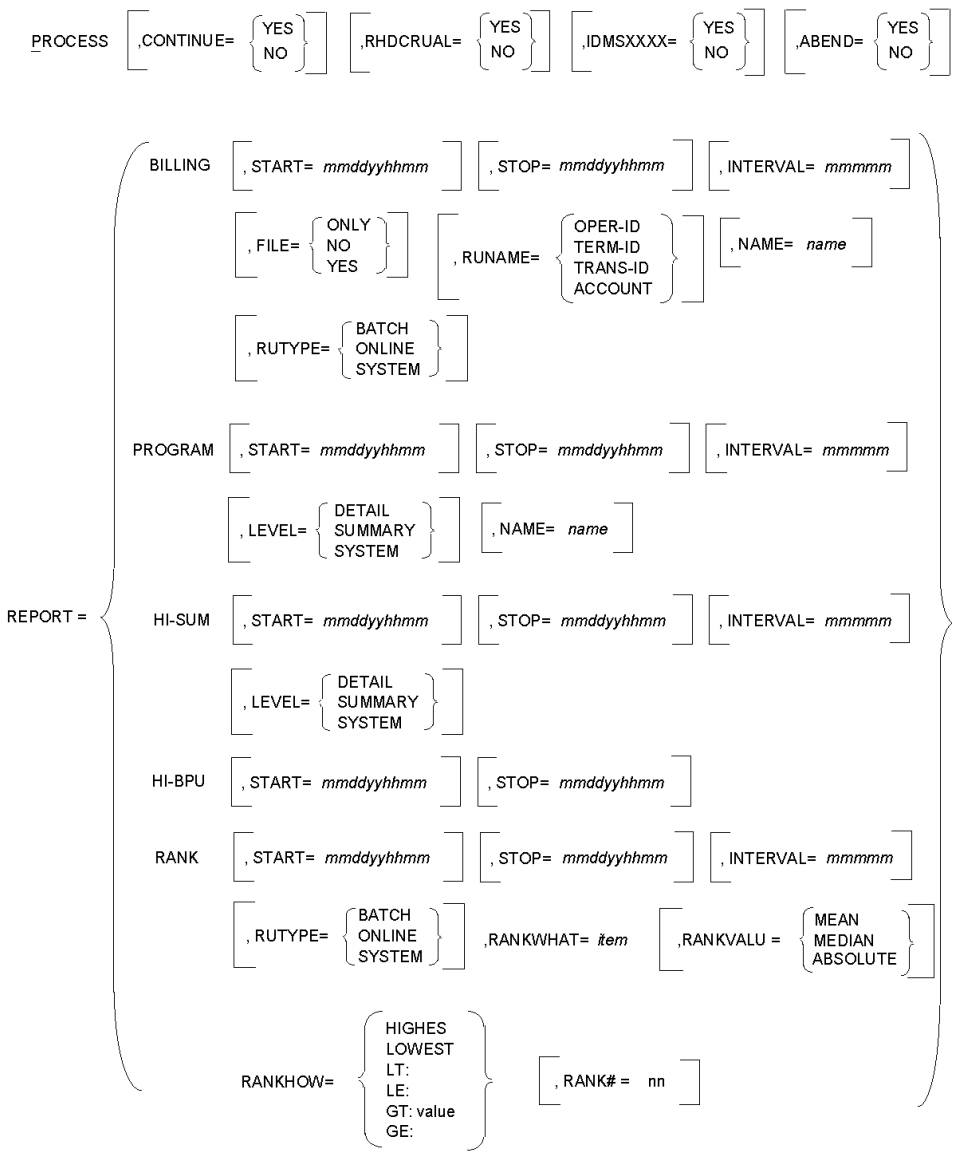

Figure 3-1. CA-IDMS/Log Analyzer Parameter Syntax

3.3 PROCESS Parameter

The PROCESS parameter specifies that CA-IDMS/Log Analyzer processing is desired. It also specifies parameters that have global meaning for the entire execution of CA-IDMS/Log Analyzer. PROCESS is mandatory.

The PROCESS parameter syntax is:

```
PROCESS [,CONTINUE={YES
                   NO←}]
        [,RHDCRUAL={YES
                   NO←}]
        [,IDMSXXXX={YES
                   NO←}]
        [ABEND={YES←
               NO}]
```

3.3.1 PROCESS Syntax

PROCESS

Identifies the PROCESS statement.

3.3.2 CONTINUE Syntax and Options

```
CONTINUE={YES
         NO←}
```

Indicates whether reports should be produced if invalid parameters (parameter errors) are detected.

- YES--indicates that processing will continue even if an invalid parameter is encountered. CA-IDMS/Log Analyzer will ignore the invalid parameter and continue processing by locating the next valid parameter statement. An error message indicating an invalid parameter statement will appear on the Audit Report.
- NO--indicates that after all parameters have been validated, processing will terminate if an invalid parameter statement was encountered. An error message will appear on the Audit Report.

Default: NO

3.3.3 RHDCRUAL Syntax and Options

RHDCRUAL={YES
NO←}

Indicates whether CA-IDMS/DC internal run-units will be selected for processing by subsequent REPORT parameters.

- YES--indicates that run-unit RHDCRUAL will be selected for processing by subsequent REPORT parameters.
- NO--indicates that run-unit RHDCRUAL will not be selected for processing by subsequent REPORT parameters.

Default: NO

3.3.4 IDMSXXXX Syntax and Options

IDMSXXXX={YES
NO←}

Indicates whether run-units with program names beginning with IDMS will be selected for processing by subsequent REPORT parameters.

- YES--indicates that run-units with program names beginning with IDMS will be selected for processing by subsequent REPORT parameters.
- NO--indicates that run-units with program names beginning with IDMS will not be selected for processing by subsequent REPORT parameters.

Default: NO

3.3.5 ABEND

ABEND={YES←
NO}

Indicates whether CA-IDMS/Log Analyzer is to terminate with an abend (operation exception) when a serious error occurs.

- YES--indicates that processing will terminate with an abend (operation exception) when a serious error occurs.
- NO--indicates that processing will terminate without an abend when a serious error occurs. (In an OS/390 environment, a return code of 16 will be set.) If the cause of the error is not readily apparent, Computer Associates Product Support may request that you rerun with ABEND=YES

Default: YES

3.4 Billing Reports/Billing Record File Parameters

The Billing Reports are available at four levels: details, summary, system, and grand summary. Grand summary, the fourth report level, is produced automatically when you select multiple time intervals. To generate these reports or the Billing Record File, use the parameter syntax listed here.

The parameters are:

REPORT=BILLING [,START=*mmddyyhhmm*] [,STOP=*mmddyyhhmm*]

[,INTERVAL=*mmmmm*]

[,LEVEL={SUMMARY
DETAIL
SYSTEM←}]

[,FILE= {ONLY
NO
YES←}]

[,RUTYPE= {ONLINE
BATCH
SYSTEM←}]

[,RUNAME= {OPER-ID
TERM-ID
TRANS-ID
ACCOUNT}]

[,NAME=*name* or *]

3.4.1 REPORT Syntax

REPORT=BILLING

Indicates that CA-IDMS/Log Analyzer is to process a request for a BILLING Report.

3.4.2 START Syntax

START=*mmddyyhhmm*

Specifies the starting date and time for a single report request.

Default: The default is the earliest Log date/time found in the input file.

Rules:

1. Start time must be specified in mmddyyhhmm format, where mmddyy represents the Gregorian date (month/day/year) and hhmm is the time (hour/minute) using the 24-hour clock.
2. All zeros must be entered as placeholders. For example, 0102992301 would be entered for 11:01 p.m. on January 2, 1999.

3.4.3 STOP Syntax

STOP=*mmddyyhhmm*

Specifies the end of a selected time period for a single report request.

Default: The default for this keyword is the latest Log date/time found in the input file.

Rules:

1. Stop time must be specified in mmddyyhhmm format, where mmddyy represents the Gregorian date (month/day/year) and hhmm is the time (hour/minute) using the 24-hour clock.
2. All zeros must be entered as placeholders. For example, 0102992301 would be entered for 11:01 p.m. on January 2, 1999.

3.4.4 INTERVAL Syntax

INTERVAL=*mmmmm*

Specifies whether the time period you selected using the START and STOPparameters is to be divided into intervals and also specifies the length of those intervals.

Default: Zero. Therefore, the time period will be reported as a single interval.

Rules:

1. INTERVAL must be specified in the mmmmm (minutes) format. (It is not necessary to include leading zeros.)
2. If you specify multiple intervals, a Grand Summary Report will be produced automatically.

3.4.5 LEVEL Syntax and Options

LEVEL={SUMMARY
DETAIL
SYSTEM←}

Use this parameter to specify the level of reporting that you want printed.

- DETAIL--indicates that you want CA-IDMS/Log Analyzer to print the Billing Details Report. (A Billing Summary Report and a Billing System Summary Report also will be produced for each time interval. A Grand Summary is produced only when you request multiple intervals.)
- SUMMARY--indicates that you want a Billing Summary Report by program name. (A system summary will be produced for each time interval specified by the INTERVAL parameter. A Grand Summary is produced automatically whenever multiple intervals are reported.)
- SYSTEM--indicates that you want only system summaries to be produced for each time interval. A Grand Summary is produced if multiple intervals are reported.

Default: SYSTEM

3.4.6 FILE Syntax and Options

```
FILE= {ONLY
       NO
       YES←}
```

Use the FILE parameter to control the creation of a Billing Record File and a Billing Report.

- ONLY--indicates that you want CA-IDMS/Log Analyzer to create only the Billing Record File but not the Billing Report(s).
- NO--indicates that you want a Billing Report(s) but not the Billing Record File.
- YES--indicates that you want CA-IDMS/Log Analyzer to create the Billing Record File along with a Billing Report(s).

Default: YES

3.4.7 RUTYPE Syntax and Options

```
RUTYPE= {ONLINE
         BATCH
         SYSTEM←}
```

When each run-unit was originally executed by CA-IDMS, it was executed as either a batch or online task. Using this parameter, you can specify whether the Billing Report will select only batch or only online run-units, or you can use the SYSTEM parameter to indicate that all system tasks (both batch and online) are to be reported.

Use this parameter to specify which type of run-units are to be selected for reporting.

- BATCH--indicates that only batch run-units are to be reported on the Billing Report.
- ONLINE--indicates that only ONLINE run-units are to be reported on the Billing Report.

- SYSTEM--indicates that both batch and online run-units are to be reported on the Billing Report.

Default: SYSTEM

3.4.8 RUNAME Syntax and Options

RUNAME= {OPER-ID
TERM-ID
TRANS-ID
ACCOUNT}

An individual run-unit or CA-ADS dialog may be identified in a number of ways. The way CA-IDMS/Log Analyzer identifies a run-unit is determined by two things:

- Whether this run-unit originates from an online transaction or a batch transaction.
- Whether this is a request for a Billing Report or a Program Report.

Billing Report parameters allow you to specify which field will be chosen as the identifying element of the run-unit (the run-unit name or RUNAME). Only the Billing Reports offer you this option. Online run-units can be identified by either operator, terminal, or transaction of origin. Batch run-units can only be identified by the batch job's accounting information (i.e., account number, etc.).

- OPER-ID--specifies that online run-units (or dialogs) are to be identified by operator ID.
- TERM-ID--specifies that online run-units (or dialogs) are to be identified by terminal ID.
- TRANS-ID--specifies that online run-units (or dialogs) are to be specified by transaction ID. TRANS-ID is the default for online run-units.
- ACCOUNT--specifies that batch run-units are to be identified by account (i.e., account number or account name). ACCOUNT is the default for all batch run-units.

Default: ACCOUNT is the default for all batch run-units. TRANS-ID is the default for all online run-units.

3.4.9 NAME Syntax and Options

NAME = *name* or *

This parameter lets you select only those run-unit records that have a specific (or generic) run-unit name. The field that is to contain this name is specified by the RUNAME parameter.

Use this parameter to specify the actual (or generic) operator ID, terminal ID, transaction ID, or account information that a run-unit must have in order for that run-unit to be selected for analysis on the Billing Report.

Default: *. See note below for more information.

Note: CA-IDMS/Log Analyzer will perform generic processing. For example, if you key in an asterisk (*) before a name field (i.e., NAME = *ABC), all run-units whose name field (as specified by the RUNAME parameter) begins with ABC will be included in the report.

The overhead records for CA-ADS can be accessed by specifying RUNAME=TRANS-ID, NAME=$ADS@@OH.

Rules:

1. A maximum of eight characters can be entered for OPER-ID, TERM-ID, or TRANS-ID.
2. When BATCH is selected as RUTYPE and ACCOUNT is chosen as RUNAME, up to eleven (11) characters can be supplied for this value field.

3.4.9.1 How RUNAME, RUTYPE, and NAME Parameters Interrelate

RUNAME is different for online run-units than it is for batch run-units. This means you should use NAME with RUTYPE = SYSTEM only after carefully considering whether the RUNAME fields of batch and online run-units will both contain the same value. For example, if you specify NAME = ABC, will batch run-units have an ACCOUNT field of ABC and online run-units have a TRANS-ID (or OPER-ID or TERM-ID) field of ABC?

3.5 Program Report Parameters

Four Program Reports are available at four different levels: detail, summary, and system. The fourth level, grand summary, is generated automatically if you select multiple intervals. To get these reports, use the parameter syntax listed on this page.

REPORT=PROGRAM [,START=*mmddyyhhmm*] [,STOP=*mmddyyhhmm*]

[,INTERVAL=*mmmmm*]

[,LEVEL={SUMMARY
DETAIL
SYSTEM←}]

[,NAME=*name* or *]

3.5.1 REPORT Syntax

REPORT= PROGRAM

Specifies that CA-IDMS/Log Analyzer is to create and print a PROGRAM Report.

3.5.2 START Syntax

START = *mmddyyhhmm*

specifies the starting date and time for a single report request.

Default: The earliest Log date/time found in the input file.

Rules:

1. Start time must be specified in mmddyyhhmm format, where mmddyy represents the Gregorian date (month/day/year) and hhmm is the time (hour/minute) using the 24-hour clock.
2. All zeros must be entered as placeholders. For example, 0102992301 would be entered for 11:01 p.m. on January 2, 1999.

3.5.3 STOP Syntax

STOP = *mmddyyhhmm*

Specifies the end of a selected time period for a single report request.

Default: The default for this keyword is the latest Log date/time found in the input file.

Rules:

1. Stop time must be specified in mmddyyhhmm format, where mmddyy represents the Gregorian date (month/day/year) and hhmm is the time (hour/minute) using the 24-hour clock.
2. All zeros must be entered as placeholders. For example, 0102992301 would be entered for 11:01 p.m. on January 2, 1999.

3.5.4 INTERVAL Syntax

INTERVAL = *mmmmm*

Specifies whether the time period you selected using the START and STOP parameters is to be divided into intervals and also specifies the length of those intervals.

Default: Zero. Therefore, the time period will be reported as a single interval.

Rules:

1. INTERVAL must be specified in the mmmmm (minutes) format. (It is not necessary to include leading zeros.)
2. If you specify multiple intervals, a Grand Summary Report will be produced automatically.

3.5.5 LEVEL Syntax and Options

LEVEL={SUMMARY
DETAIL
SYSTEM←}

Use this parameter to specify the level of report that you want printed.

- DETAIL--indicates that you want CA-IDMS/Log Analyzer to print the Program Details Report (A Program Summary Report and a Program System Summary Report also will be produced for each time interval. A Grand Summary is produced only when you request multiple intervals.)
- SUMMARY--indicates that you want a Program Summary Report for all run units selected. In addition, a system summary will be produced for each time interval specified by the INTERVAL parameter. A grand summary is produced if multiple intervals are reported. SYSTEM is the default value.
- SYSTEM--indicates that only Program System Summary Reports will be produced for each time interval. A grand summary is produced only when multiple intervals are requested.

Default: SYSTEM

3.5.6 NAME Syntax and Options

NAME = *name* or *

Allows you to supply the actual (or generic) name of the program(s) or dialog(s) to be reported on by CA-IDMS/Log Analyzer.

For CA-ADS dialogs, NAME identifies the name of the dialog. Overhead records for CA-ADS are reported under the name ADS@@OH.

For tasks executed within CA-IDMS/DC, NAME is not the name of the program. Instead, it is the name of the CA-IDMS/DC task.

Default: *. See note below for further information.

Note: CA-IDMS/Log Analyzer will perform generic processing. For example, if you key in an asterisk (*) before a name field (i. e. , NAME = *ABC), all run-units whose program name begins with ABC will be included in the report.

3.6 Management Highlights Summary Report Parameters

The Management Highlights Summary Reports are available at three levels of detail: program, system, and grand. To generate these reports, use the parameter syntax listed on this page.

REPORT=HI-SUM [,START=*mmddyyhhmm*] [,STOP=*mmddyyhhmm*]

[,INTERVAL=*mmmmm*]

[,LEVEL={PROGRAM
SYSTEM
GRAND←}]

3.6.1 REPORT Syntax

REPORT = HI-SUM

Indicates that CA-IDMS/Log Analyzer is to create and print a Management Highlights Summary Report.

3.6.2 START Syntax

START = *mmddyyhhmm*

Specifies the starting date and time for a single report request.

Default: The earliest Log date/time found in the input file.

Rules:

1. Start time must be specified in mmddyyhhmm format, where mmddyy represents the Gregorian date (month/day/year) and hhmm is the time (hour/minute) using the 24-hour clock.
2. All zeros must be entered as placeholders. For example, 0102992301 would be entered for 11:01 p.m. on January 2, 1999.

3.6.3 STOP Syntax

STOP = *mmddyyhhmm*

Specifies the end of a selected time period for a single report request.

Default: The default is the latest Log date/time found in the input file.

Rules:

1. Stop time must be specified in mmddyyhhmm format, where mmddyy represents the Gregorian date (month/day/year) and hhmm is the time (hour/minute) using the 24-hour clock.
2. All zeros must be entered as placeholders. For example, 0102992301 would be entered for 11:01 p.m. on January 2, 1999.

3.6.4 INTERVAL Syntax

INTERVAL = *mmmmm*

specifies whether the time period you selected using the START and STOP parameters is to be divided into intervals and also specifies the length of those intervals.

Default: Zero. Therefore, the time period will be reported as a single interval.

Rules:

1. INTERVAL must be specified in the mmmmm (minutes) format. (It is not necessary to include leading zeros.)
2. If you specify multiple intervals, a Grand Summary Report will be produced automatically.

3.6.5 LEVEL Syntax

LEVEL={PROGRAM
SYSTEM
GRAND←}

Use this parameter to specify the level of report you want printed.

- PROGRAM--indicates accumulation for each program or dialog in a time interval. A Management Highlights System Summary Report also will be produced for each time interval. (A Management Highlights Grand Summary Report is produced only when you request multiple intervals.)
- SYSTEM--indicates accumulation for all programs and dialogs within a time interval. A Management Highlights Grand Summary Report is produced if multiple intervals are reported.
- GRAND--indicates accumulation of all programs and dialogs within all time intervals. GRAND is identical to SYSTEM if the INTERVAL parameter is not supplied.

Default: GRAND

3.7 Buffer Pool Utilization Report Parameters

To generate the Management Highlights Buffer Pool Utilization Report, use the parameter syntax listed on this page.

REPORT= HI-BPU [,START =*mmddyyhhmm*]
[,STOP =*mmddyyhhmm*]

3.7.1 REPORT Syntax

REPORT= HI-BPU

Specifies that CA-IDMS/Log Analyzer is to create and print a Management Highlights Buffer Pool Utilization Report.

Note: Buffer Pool Utilization Reports are generated on 24-hour intervals only. The built-in interval begins at midnight and continues until midnight of the next day. CA-IDMS/Log Analyzer will override any INTERVAL you attempt to supply.

3.7.2 START Syntax

START = *mmddyyhhmm*

Specifies the starting date and time for a single report request.

Default: The default is the earliest Log date/time found in the input file.

Rules:

1. Start time must be specified in mmddyyhhmm format, where mmddyy represents the Gregorian date (month/day/year) and hhmm is the time (hour/minute) using the 24-hour clock.
2. All zeros must be entered as placeholders. For example, 0102992301 would be entered for 11:01 p.m. on January 2, 1999.

3.7.3 STOP Syntax

STOP = *mmddyyhhmm*

Specifies the end of a selected time period for a single report request.

Default: The default for this keyword is the latest Log date/time found in the input file.

Rules:

1. Stop time must be specified in mmddyyhhmm format, where mmddyy represents the Gregorian date (month/day/year) and hhmm is the time (hour/minute) using the 24-hour clock.
2. All zeros must be entered as placeholders. For example, 0102992301 would be entered for 11:01 p.m. on January 2, 1999.

3.8 Management Ranking Report Parameters

The REPORT parameter syntax for the Management Ranking Report is listed below.

REPORT=RANK [,START=*mmddyyhhmm*] [,STOP=*mmddyyhhmm*]

[,INTERVAL=*mmmmm*]

[,RUTYPE= {ONLINE
BATCH
SYSTEM←}]

[,RANKWHAT={*item*
DETAIL
SYSTEM←}]

[,RANKVALU= {MEAN
MEDIAN
ABSOLUTE←}]

[,RANKHOW= {HIGHEST
LOWEST
LT: *value*
LE: *value*
GT: *value*
GE: *value*}]

[,RANK# =*nn*]

3.8.1 REPORT Syntax

REPORT =RANK

Indicates that CA-IDMS/Log Analyzer is to create and print a Management Ranking Report.

3.8.2 START Syntax

START =*mmddyyhhmm*

Specifies the starting date and time for a single report request.

Default: The earliest Log date/time found in the input file.

Rules:

1. Start time must be specified in mmddyyhhmm format, where mmddyy represents the Gregorian date (month/day/year) and hhmm is the time (hour/minute) using the 24-hour clock.
2. All zeros must be entered as placeholders. For example, 0102992301 would be entered for 11:01 p.m. on January 2, 1999.

3.8.3 STOP Syntax

STOP = *mmddyyhhmm*

Specifies the end of a selected time period for a single report request.

Default: The default for this keyword is the latest Log date/time found in the input file.

Rules:

1. Stop time must be specified in mmddyyhhmm format, where mmddyy represents the Gregorian date (month/day/year) and hhmm is the time (hour/minute) using the 24-hour clock.
2. All zeros must be entered as placeholders. For example, 0102992301 would be entered for 11:01 p.m. on January 2, 1999

3.8.4 INTERVAL Syntax

INTERVAL = *mmmmm*

Specifies whether the time period you selected using the START and STOP parameters is to be divided into intervals and also specifies how long those intervals should be.

Default: An interval of zero means that the time period will be reported as a single interval. This is the default.

Rule: INTERVAL must be specified in the mmmmm (minutes) format. (It is not necessary to include leading zeros.)

3.8.5 RUTYPE Syntax and Options

RUTYPE= {ONLINE
BATCH
SYSTEM←}

When each run-unit was originally executed by CA-IDMS, it was executed as either a batch or online task. Using this parameter, you can specify whether the Management Ranking Report will select only batch or only online run-units, or you can use the SYSTEM parameter to indicate that all system tasks (both batch and online) are to be reported.

Use this parameter to specify which type of run-units are to be selected for ranking.

- ONLINE--indicates that only online programs or dialogs are to be ranked.
- BATCH--indicates that only batch programs are to be ranked.
- SYSTEM--indicates that both batch and online programs and dialogs will be ranked.

Default: SYSTEM

3.8.6 RANKWHAT Syntax and Options

RANKWHAT =*item*

Specifies which attribute is to be ranked in the report.

Default: None. You must select one of the following items:

- #RU--number of run units (RANKVALU must be ABSOLUTE)
- PG-READ--pages read
- PG-WRITTEN--pages written
- PG-IO--pages written + pages read (total I/Os)
- PG-RATIO--pages requested/pages read
- CALC-RATIO--calc records overflow/calc records on home page
- VIA-RATIO--via records overflow/via records on owner page
- CPU-TIME--user-mode-time + system-mode-time

3.8.7 RANKVALUE Syntax and Options

```
RANKVALU= {MEAN
          MEDIAN
          ABSOLUTE←}
```

Run-unit information may be ranked according to the actual value of the attribute selected. As an alternative, you may specify that the MEAN or MEDIAN value for all program occurrences of the attribute is to be the basis of the ranking.

- MEAN--indicates that programs are to be ranked by the average value of the attribute for all run-units of the ranked program.
- MEDIAN--indicates that programs are to be ranked by the median value of the attribute for all run-units of the ranked program.
- ABSOLUTE--indicates that run-units are to be ranked by the value of the attribute from each run-unit of the ranked program.

Default: ABSOLUTE

Rule: ABSOLUTE must be specified when RANKWHAT=#RU is specified.

3.8.8 RANKHOW Syntax and Options

RANKHOW= {HIGHEST
LOWEST
LT: *value*
LE: *value*
GT: *value*
GE: *value*}

Use this keyword to specify how the attribute you selected is to be ranked. There are six methods to choose from.

- HIGHEST--the attribute will be ranked from its highest value in a descending order.
- LOWEST--the attribute will be ranked from its lowest value in an ascending order.
- LT: *value*--the attribute will be ranked from a value less than the specified value in a descending order.
- LE: *value*--the attribute will be ranked from a value less than or equal to the specified value in a descending order.
- GT: *value*--the attribute will be ranked from a value greater than the specified value in an ascending order.
- GE: *value*--the attribute will be ranked from a value greater than or equal to the specified value in an ascending order.

Default: None. You must select one of the six available ranking methods.

Rules:

1. The specified values for LT, LE, GT, and GE must include two decimal positions when ranking medians or ratios (e. g. , median of five pages read is 500; a ratio of 3. 14 is 314).
2. Value (for LT, LE, GT, and GE) must be nine digits or less. Leading zeros are not required.
3. HIGHEST or LOWEST must be specified when RANKWHAT=#RU is specified.
4. HIGHEST or LOWEST must be specified when either RANKVALU=MEAN or RANKVALU=MEDIAN is specified.

3.8.9 RANK# Syntax

RANK# = *nn*

After all of the run-unit records have been selected and ranked, you may also request how many you want to see on the Management Ranking Report. For example, if you only want to see the first 10 when ranked according to your RANKHOW parameter, specify RANK# = 10.

Use this parameter to specify the number of items to be reported on the RANKING report.

Default: 20

Rule: The maximum number of items that can be reported is 50. (It is not necessary to include leading zeros.)

Chapter 4. Customizing the Billing Reports

4.1 Overview

This chapter contains guidelines for customizing the billing data produced by CA-IDMS/Log Analyzer. Billing data for batch jobs or CICS transactions is initially created by GSISVCX, the CA-IDMS Tools module that operates as an exit to the CA-IDMS SVC (billing data for CA-IDMS/DC tasks is created by CA-IDMS). Billing data is reported by USLRPT5, the Billing Report module, and formatted as a file by USLBILX, the Billing Formatter Exit module. Source code is provided for these modules so that you can easily change them. Tailoring the format of the billing data can provide you with data that conforms to the processing requirements of your billing system. The billing data contained in the Billing Record File can then be merged and processed with other cost and billing information in your system.

4.2 How Customization Works

Two portions of the CA-IDMS/Log Analyzer system are supplied to you in executable object code format and also in source code format. With object and source code available, you can run CA-IDMS/Log Analyzer just as it is supplied to you, or you can customize any aspect of the billing functions CA-IDMS/Log Analyzer performs.

Source code is supplied for:

- **GSISVCX**--the CA-IDMS Tools version of the CA-IDMS SVC exit module.
- **USLBILX**--the CA-IDMS/Log Analyzer Billing File formatter.
- **USLRPT5**--the CA-IDMS/Log Analyzer Billing Reporter.

Note: The GSISVCX module, the CA-IDMS Tools version of the CA-IDMS SVC exit module, is customized during the installation process. See the *CA-IDMS Installation and Maintenance Guide* for information on customizing the GSISVCX module.

4.2.1 Customizing the GSISVCX Module

GSISVCX, the CA-IDMS Tools version of the assembler language module IDMSSVCX is designed to create a 40-position extension to the CA-IDMS External Request Element control block (ERE). The type of data that is placed into these 40 positions by the module depends, in part, on whether the run-unit being processed is identified by CA-IDMS as BATCH or CICS.

For any type of run-unit--the JOBNAME, the run-unit start date and time, and the step start time are moved into the ERE by GSISVCX.

For BATCH run-units--up to 16 bytes of information contained in the account field of the jobcard are moved into the ERE by GSISVCX.

For CICS run-units--the transaction ID, terminal ID, and operator ID are moved into the ERE by GSISVCX. You will need to customize this module if your installation already uses a version of IDMSSVCX and that function must be retained for continued use: if your account number is not in the first field of the OS/390 JOB ACCT parameter; if your installation uses a TP monitor other than CICS; or if the data moved into the ERE is not sufficient for your billing system requirements.

To customize GSISVCX, your systems programmer must make the desired changes to the source code. See the *CA-IDMS Tools Installation and Maintenance Guide*.

When altering the source code for GSISVCX, follow these guidelines:

- The ERE may be defined as any length between 40 and 32767 but only the first 40 positions will be written by CA-IDMS to the Task Statistics Record.
- All CA-IDMS/Log Analyzer Billing Report functions depend upon the data of the ERE. This is especially true of the ERE fields containing the ONLINE/BATCH

designation, and the ACCOUNT/TRANS-ID, TERM-ID, OPER-ID data. If the position, size, or format of these data fields is altered, it will have serious impact on your ability to select log records for inclusion in the Billing Reports or Billing File. Specifically, if the ONLINE/BATCH indicator is moved or altered, you will no longer be able to specify RUTYPE=ONLINE or RUTYPE=BATCH on any request for Billing Reports or Billing Files. See Chapter 3, "Parameters" on page 3-1. If ACCOUNT/TRANS-ID, TERM-ID, or OPER-ID are moved or altered, you will no longer be able to use the NAME parameter for any Billing request. Finally, if any of these fields are moved or altered, the USLBILX and USLRPT5 modules will have to be modified to accept the revised format of the ERE. See Appendix B, "External Request Element Extension" on page B-1 for the ERE descriptions.

- After the GSISVCX source code is modified, the CA-IDMS SVC macro must be reassembled. See the *CA-IDMS Installation and Maintenance Guide* for detailed information.

4.2.2 Customizing the USLBILX Module

The COBOL language Billing File formatter module, USLBILX, is designed to access the information placed into the ERE. In addition, this module is designed to combine ERE extension information with other data from the Task Statistics Archive Log Record to create a Billing Record in a predefined format. See Appendix D, "Billing Record file" on page D-1 for a description of the Billing Record File.

When a CA-IDMS/DC task is processed, there will not be any ERE extension information.

You must customize this module if the content of the ERE extension is changed when GSISVCX is changed; if the content or format of the Billing Record is not compatible with the billing system in your environment; or if data from additional sources must be merged into the Billing Record. See Appendix A, "USLBILX and USLRPT5 Source Code" on page A-1 for information on printing the source module.

After making the desired changes to the source code, recompile USLBILX specifying NOD (OS/390), TOOLJCL library member USLRLNK6.S (VSE/ESA), or the USLRLNK6 EXEC (VM/ESA), contains the linkage editor control statements for USLRPT6.

4.2.3 Customizing the USLRPT5 Module

The COBOL language Billing Reporter module, USLRPT5, is designed to access the information placed into the ERE extension by GSISVCX. For CA-IDMS/DC tasks, the ERE extension portion of the log contains no data, but all necessary information is contained elsewhere in the log record. Using this information, along with other data from the Task Statistics Record, USLRPT5 produces the CA-IDMS/Log Analyzer Billing Report.

Extracted data from the log file is presented, one record at a time, to USLRPT5 in a predefined sequence depending upon the value of RUNAME on the Billing request. Because the field defined by RUNAME resides in the ERE extension, the sequence may be adversely affected by alterations to the ERE extension.

You must customize this module if the content of the ERE extension is altered when you changed GSISVCX or if you need to change the Billing Report format to conform with standards in your environment. See Appendix A, “USLBILX and USLRPT5 Source Code” on page A-1 for information on printing the source module.

After making the desired changes to the source code, recompile USLRPT5 specifying NODYNAM,NORES and relink the CA-IDMS/Log Analyzer module USLRPT5. Target or Distribution s (OS/390), TOOLJCL library member USLRLNK5.S (VSE/ESA), the USLRLNK5 EXEC (VM/ESA), contains the linkage editor control statements for USRLNK5.

Chapter 5. Operations

5.1 Overview

This section lists and explains the JCL necessary to successfully execute CA-IDMS/Log Analyzer in an OS/390, VSE/ESA, or VM/ESA environment.

5.2 OS/390 Environment

The OS/390 JCL necessary to execute CA-IDMS/Log Analyzer is contained in Target or Distribution source library member USLAJCL. A sample of the supplied JCL is listed, followed by notes.

5.2.1 OS/390 JCL

```
//USLMAINJOB(job accounting information)
//LOGAPROCPROC OUTCLASS=A,                                          (1)
//                    LOGALIB='YOUR.LOGA.LOADLIB',                  (2)
//                    PROG=USLMAIN,                                 (3)
//                    LOGDSN='IDMS.LGARCHIV',                       (4)
//                    LOGUNIT=,                                     (5)
//                    LOGVOL=,                                      (5)
//                    SORTCYL='(5,5)',                              (6)
//                    EXTCYL='(5,5)',                               (6)
//                    EXTBLK=,                                      (7)
//                    EXTDISP='(NEW,DELETE,DELETE)',                (8)
//                    BILLDSN='YOUR.LOGA.BILLFILE',                 (9)
//                    BILLCYL='(5,5)',                              (6)
//                    BILLBLK=,                                    (10)
//                    BILDISP=CATLG                                (11)
//LOGA          EXEC  PGM=&PROG
//STEPLIB         DD  DSN=&LOGALIB,DISP=SHR
//SORTMSG         DD  SYSOUT=&OUTCLAS
//SYSOUT          DD  SYSOUT=&OUTCLAS
//AUDIT           DD  SYSOUT=&OUTCLAS
//REPORTS         DD  SYSOUT=&OUTCLAS
//SYSUDUMP        DD  SYSOUT=&OUTCLAS
//LOGFILE         DD  DSN=&LOGDSN,
//                    DISP=OLD&LOGUNIT&LOGVOL
//SORTWK01        DD  UNIT=DISK,SPACE=(CYL,&SORTCYL)
//SORTWK02        DD  UNIT=DISK,SPACE=(CYL,&SORTCYL)
//SORTWK03        DD  UNIT=DISK,SPACE=(CYL,&SORTCYL)
//SORTWK04        DD  UNIT=DISK,SPACE=(CYL,&SORTCYL)
//SORTWK05        DD  UNIT=DISK,SPACE=(CYL,&SORTCYL)
//SORTWK06        DD  UNIT=DISK,SPACE=(CYL,&SORTCYL)
//EXTRACT         DD  DSN=&EXTDSN,
//                    UNIT=DISK,SPACE=(CYL,&EXTCYL),
//                    DISP=&EXTDISP&EXTBLK
//BILLFILE        DD  DSN=&BILLDSN,
//                UNIT=DISK,SPACE=(CYL,&BILLCYL),
//                DISP=(NEW,&BILDISP,DELETE)&BILLBLK
//SYSIPT          DD  DDNAME=SYSIN
//PEND
//LOGA          EXEC  LOGAPROC,
//* SPECIFY SORTLIB DD DSN=:&ellips.          (if necessary)        (12)
//* ENTER INPUT PARAMETERS HERE
 PROCESS , CONT=Y , IDMSXXXX=YES , RHDCRUAL=NO
  REPORT=HI-BPU
  REPORT=HI-SUM
  REPORT=BILLING,LEVEL=DETAIL
  REPORT=PROGRAM,LEVEL=SUMMARY
  REPORT=RANK, RANKWHAT=PG-IO, RANKHOW = HIGHEST
```

5.2.1.1 OS/390 Operation Notes

1. Specify OUTCLAS to assign print output to other than CLASS=A.
2. Specify LOGALIB to be the same as LOADLIB in STEP1 of the installation procedure.
3. Specify PROG if you have changed the name of the CA-IDMS/Log Analyzer module as created in the first step of the installation process.
4. Specify LOGDSN to name the input Archive Log File. This file must be the SYS002 file from the CA-IDMS utility RHDCPRLG or the SYS020 file from CA-CULPRIT Statistics Report 99.
5. Specify LOGUNIT **and** LOGVOL if the archive log file to be processed by CA-IDMS/Log Analyzer is not a cataloged dataset. Observe the required format for these parameters.
6. Specify SORTCYL, EXTCYL or BILLCYL if CYL (5,5) is not an appropriate space allocation for that file.

   You can estimate file size if you know how many run-units are likely to match the selection criteria of your REPORT parameter statements. For each run-unit, 19 records are created for each HI-SUM request, and one record is created for every other type of report. These records are sorted and then written to the EXTRACT file. Also, each record for a BILLING request where FILE = YES or FILE = ONLY is written to the BILLFILE.
7. Specify EXTBLK to create an EXTRACT file BLKSIZE suited to the type of storage device used in your environment.

   Extract records for Billing or Program reports are 516 bytes long. All other records on the variable length extract file are 164 bytes long. EXTBLK may specify any BLKSIZE that is at least 4 bytes larger than the largest record being created. The default EXTBLK is 6144.
8. Specify EXTDISP to choose a final disposition of the Extract File. The Extract File is used within CA-IDMS/Log Analyzer. The default disposition is (NEW,DELETE,DELETE).
9. Specify BILLDSN to name the Billing Record File that CA-IDMS/Log Analyzer is to create. This may be specified as BILLDSN=NULLFILE if no Billing record File is to be created.
10. Specify BILLBLK to create a BILLING RECORD file BLKSIZE suited to the type of storage device used at your installation. BILLBLK must specify a BLKSIZE that is a multiple of 100, the BILLFILE file record length. The default BILLBLK is 6100.
11. Specify BILDISP to choose a disposition for the Billing Record File. The default disposition is CATLG. Specify BILDISP=PASS or BILDISP=DELETE.
12. If it is required by your installation, insert //SORTLIB DD DSN=sort-library-name, DISP=SHR prior to the parameter statements. This statement names the library containing your SORT utility.

5.3 VSE/ESA Environment

A sample of a VSE/ESA environment JCL to execute CA-IDMS/Log Analyzer is contained in TOOLJCL library member USLAJCL.S. This sample must be modified to reflect your hardware. A sample of the supplied JCL is listed below followed by the notes.

5.3.1 VSE/ESA JCL

```
// OPTION PARTDUMP
//   ASSGN     SYS005,SYSIPT                        PARAMETER INPUT
//   ASSGN     SYS006,SYSLST                        AUDIT REPORT
//   ASSGN     SYS007,CUU                           SELECTED REPORTS        (1)
//   ASSGN     SYS010,CUU                           ARCHIVE LOG FILE        (1)
//   DLBL      LOGFILE,'IDMS57.LGARCHIV',999,SD        X                        (3,4,6)
//   EXTENT    SYS010,DISK,1,0,417200,10000         X                       (2)
*
//   ASSGN     SYS009,CUU                           BILLING FILE            (1)
//   DLBL      BILLFIL,'BILLING.LOGA',0,SD             X
//   EXTENT    SYS009,DISK,1,0,348000,01999         X                       (2)
*
//   ASSGN     SYS008,CUU                           EXTRACT FILE            (1)
//   DLBL      EXTRACT,'LOGA.EXTRACT',0,SD             X                        (3,6)
//   EXTENT    SYS008,DISK,1,0,427200,05270         X                       (2)
*
//   ASSGN     SYS001,CUU                           SORT WORK #1            (1)
//   DLBL      SORTWK1,'SORT.WORK.1',0,SD                 X
//   EXTENT    SYS001,DISK,1,0,396000,07000         X                       (2)
*
//   ASSGN     SYS002,CUU                           SORT WORK #2            (1)
//   DLBL      SORTWK2,'SORT.WORK.2',0,SD                 X
//   EXTENT    SYS002,DISK,1,0,403000,07000         X                       (2)
*
//   ASSGN     SYS003,CUU                           SORT WORK #3            (1)
//   DLBL      SORTWK3,'SORT.WORK.3',0,SD                 X
//   EXTENT    SYS003,DISK,1,0,410000,07000         X                       (2)
*
*      PRIVATE CORE IMAGE LIBRARY(S)
// DLBL   CILIB1,'YOUR-LOGA-CORELIB'          LOG ANALYZER LIBRARY
// EXTENT ,VOL=VOLSER
// DLBL   CILIB2,'YOUR-IDMS-CORELIB'          IDMS LIBRARY
// EXTENT ,VOL=VOLSER
// LIBDEF CL,SEARCH=(CILIB1,CILIB2),TEMP
*
// EXEC USLMAIN,SIZE=(AUTO,48K)                                               (5)
*ENTER INPUT PARAMETERS
     PROCESS , CONT=Y , IDMSXXXX=YES , RHDCRUAL=NO
      REPORT=HI-BPU
      REPORT=HI-SUM
      REPORT=BILLING,LEVEL=DETAIL
      REPORT=PROGRAM,LEVEL=SUMMARY
      REPORT=RANK, RANKWHAT=PG-IO, RANKHOW = HIGHEST
/*
```

5.3.1.1 VSE/ESA Operation Notes:

1. Modify the unit addresses to refer to your installation's unit(s).
2. Specify extents and volume serial number(s) appropriate to your volume(s).

   You can estimate size if you know how many run-units are likely to match the selection criteria of your REPORT parameter statements. For each run-unit, 19 records are created for each HI-SUM request, and one record is created for each other type of request. These records are sorted and then written to the EXTRACT

file. Also, each record for a BILLING request where FILE = YES or FILE = ONLY is also written to the BILLFILE.

3. Block sizes are assigned for all files by the GSSGNCB module. See Exhibit 5.1.
4. This file must be the SYS002 file from the CA-IDMS utility RHDCPRLG or the SYS020 file from CA-CULPRIT Statistics Report 99.
5. Ensure that a 1024K partition is available for this job.
6. Even if you use a storage management tool such as CA-DYNAM, an ASSGN statement is required by CA-IDMS/Log Analyzer for every file except SORTWK*nn*. This assignment is necessary because CA-IDMS/Log Analyzer has its own device-independent support which dynamically builds a DTF based on the device type indicated by the assignment of the logical unit. The logical unit required for each work file is provided in the table in Table 5-2 on page 5-13. The device may be defined with DLBL or TLBL.

5.3.1.2 VSE/ESA File Processing Alternate Method

Occasionally you will receive a message that a file is not VSAM. The message indicates that the dataset will be processed SAM instead of VSAM because CA-IDMS/Log Analyzer was not able to find the dataset in the VSAM catalog. The allocation will not affect processing results.

5.4 VM/ESA Environment

A model VM/ESA EXEC for executing CA-IDMS/Log Analyzer is shown below. Variables (**boldface**) are explained in the key following the EXEC.

5.4.1 VM/ESA EXEC

```
/*  */
TRACE OFF; SIGNAL ON ERROR
CA_LOADLIB_FN       = 'yourlib'
IDMS_LOADLIB_FN     = 'idmslib'
SORTLIB_FN          = 'sortlib'
LOG_ARCHIVE_FN      = 'your.log.archive'
LOG_ARCHIVE_FT      = 'filetype'
LOG_ARCHIVE_FM      = '*'
/*                                                                  */
/* Link and access the Minidisks containing the required librarie(s) */
/* and database file(s).                                               */
 'CP SPOOL PRINTER NOCONT CLOSE'
 'CP SPOOL PRINTER TO * NOHOLD CONT FORM OFF DIST OFF'
 'GLOBAL  LOADLIB ' CA_LOADLIB_FN IDMS_LOADLIB_FN
 'GLOBAL  TXTLIB ' SORTLIB_FN
/*                                                                  */
/* Files needed for all runs.                                          */
 'FILEDEF SORTMSG  PRINTER'
 'FILEDEF SYSUDUMP PRINTER'
 'FILEDEF SYSOUT   PRINTER'
 'FILEDEF AUDIT    DISK LOGA AUDIT fm'
 'FILEDEF REPORTS  DISK LOGA REPORTS fm'
 'FILEDEF EXTRACT  DISK LOGA EXTRACT fm'
 'FILEDEF LOGFILE  DISK' ,
   LOG_ARCHIVE_FN  LOG_ARCHIVE_FT LOG_ARCHIVE_FM
/*                                                                  */
/* You must create a file 'USLEXEC SYSIPT A' containing the input    */
/* parameter statements prior to executing this EXEC.                  */
/* This file must include a PROCESS statement and other statements   */
/* for the reports and displays that you want generated. See CA-IDMS */
/* Log Analyzer User Guide for further details.                        */
/*                                                                  */
 'FILEDEF SYSIPT   DISK USLEXEC SYSIPT   A'
/*                                                                  */
/* Insert FILEDEF statements for SORT work space as required by      */
/* your SORT product.                                                  */
/*                                                                  */
 'FILEDEF SORTWK01 DISK sort_fn sort_ft sort_fm4 ( XTENT 100 '
/*                                                                  */
SIGNAL OFF ERROR
SAY 'STARTING EXECUTION OF CA-IDMS/LOG ANALYZER'
USLEXEC_RC = RC
 'EXECOS OSRUN USLMAIN'
 USLEXEC_RC = RC
 'CP SPOOL PRINTER NOCONT'
 'CP CLOSE PRINTER NAME LOGA LISTING'
 'CP SPOOL PRINTER OFF'
 SAY 'USLEXEC FINISHED WITH A RETURN CODE OF' USLEXEC_RC
 'GLOBAL LOADLIB'
 'GLOBAL TXTLIB'
 'FILEDEF * CLEAR'
 EXIT USLEXEC_RC
/*                                                                  */
/*++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++ */
ERROR:
/*++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++ */
```

```
  ERROR_RC = RC
  TRACE OFF; SIGNAL OFF ERROR
  SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL
 'CP SPOOL PRINTER NOCONT'
 'CP CLOSE PRINTER NAME LOGA LISTING'
 'CP SPOOL PRINTER OFF'
 'GLOBAL LOADLIB'
 'GLOBAL TXTLIB'
 'FILEDEF * CLEAR'
  EXIT ERROR_RC
/*                                                              */
```

5.4.1.1 Key to VM/ESA EXEC

Table 5-1. VM/ESA JCL Sample Key

Parameter	Description
yourlib	The file name of the library into which you downloaded CA-IDMS/Log Analyzer.
idmslib	The file name of the load library containing your CA-IDMS SUBSCHEMA and DMCL modules.
sortlib	The file name of the text library containing your sort modules.
your.log.archive	The file name of your log archive file. This file must be the SYS002 file from the CA-IDMS utility RHDCPRLG or the SYS020 file from CA-CULPRIT Statistics Report 99.
LOGA REPORTS fm	The file name, file type, and file mode of your REPORTS file.
LOGA EXTRACT fm	The file name, file type, and file mode of your EXTRACT file.
sort_fn sort_ft sort_fm4	The file name, file type, and file mode of your sort work files. The size of the sort work files can be adjusted depending on the size of the EXTRACT file. You can estimate extract file size if you know how many records are likely to match the selection criteria of your REPORT parameter statements. For each run-unit, 19 records are created for each HI-SUM request, and one record is created for each other type of report. These records are sorted and then written to the EXTRACT file.
fm	The file mode of the relevant file.

Note: Ensure that your virtual machine has been IPL'd with enough storage. Contact your systems programmer for information on increasing its size, if necessary. The Log must be archived using the CA-IDMS utility with a file mode of **x4**, to indicate OS/390 file-type simulation, and a DCB of: (RECFM U LRECL 4096.

Table 5-2. File Attributes Used in CA-IDMS/Log Analyzer

FILE/ NAME	LOGICAL UNIT	RECORD SIZE	BLOCK SIZE - RDR	PRT	DISK/ TAPE
SYSIPT	SYS005	80	80	*	6080 ***
AUDIT	SYS006	133	*	133	6118
REPORTS	SYS007	133	*	133	6118
EXTRACT	SYS008	164-516 **	*	*	6144
BILLFILE	SYS009	100	*	*	6100
LOGFILE	SYS010	24-376 **	*	*	6144 ***
DISKLOG	SYS011	133	*	*	6118 ***

Note:

* This file cannot be assigned to this device type.
** This record is variable length: minimum and maximum shown.
*** The size shown is the maximum that can be processed. Smaller block sizes that are an appropriate multiple of the record size can also be processed.

Chapter 6. Messages

6.1 Overview

This chapter describes the three types of messages generated by CA-IDMS/Log Analyzer: Error Messages, Informative Messages, and Error Displays. Error Messages and Informative Messages appear on the Audit File while Error Displays appear on the SYSOUT file or SYSLST file.

The messages, reasons for occurrence, and suggested actions are listed on the following pages.

6.2 CA-IDMS/Log Analyzer Messages

CA-IDMS/Log Analyzer displays three types of messages:

Error Messages are prefixed by an Ennn message number and report on erroneous conditions that may result in incorrect processing or from which recovery is not possible.

Informative Messages are prefixed by an Innn message number and report on actions taken or processing accomplished by CA-IDMS/Log Analyzer.

Error Displays appear when CA-IDMS/Log Analyzer requests an ABEND.

6.2.1 Error Messages

CA-IDMS/Log Analyzer Error Messages are prefixed by an Ennn number. The following list provides an explanation of each message that includes a possible cause for the message and the suggested action to be taken by the user to correct the problem.

E001 AN ERROR HAS OCCURRED WHILE OPENING file name; RETURN CODES ARE n1, n2, n3, n4

Reason: Probable JCL error or VSE/ESA I/O module has not been generated correctly. Processing terminates with an abend.

Action: Correct and resubmit the job. See Table 6-1 on page 6-11 for explanation and appropriate action for the return codes indicated.

E002 AN ERROR HAS OCCURRED WHILE CLOSING file name; RETURN CODES ARE n1, n2, n3, n4

Reason: A temporary file has been deleted prematurely. Processing terminates with an abend.

Action: Correct and resubmit the job. See Table 6-1 on page 6-11 for explanation and appropriate action for the return codes indicated.

E003 AN ERROR HAS OCCURRED WHILE READING file name; RETURN CODES ARE n1, n2, n3, n4

Reason: Probable JCL error or VSE/ESA I/O module has not been generated correctly. Processing terminates with an abend.

Action: Correct and resubmit the job. See Table 6-1 on page 6-11 for explanation and appropriate action for the return codes indicated.

E004 AN ERROR HAS OCCURRED WHILE WRITING file name; RETURN CODES ARE n1, n2, n3, n4

Reason: Probable JCL error or VSE/ESA I/O module has not been generated correctly. Processing terminates with an abend.

Action: Correct and resubmit the job. See Table 6-1 on page 6-11 for explanation and appropriate action for the return codes indicated.

E005 A MINOR KEYWORD WAS NOT RECOGNIZED text

Reason: A minor keyword was misplaced or misspelled. The specific input that was not recognized is printed. CA-IDMS/Log Analyzer ignores the invalid text and skips to the next valid Keyword. Processing continues unless CONT=NO was specified.

Action: Correct the parameter and resubmit.

E006 A MAJOR KEYWORD WAS NOT RECOGNIZED text

Reason: A major keyword was misplaced or misspelled. The specific input that was not recognized is printed. CA-IDMS/Log Analyzer ignores the invalid text and skips to the next valid keyword. Processing continues unless CONT=NO was specified.

Action: Correct the parameter and resubmit.

E007 CONTINUATION OF PARAMETERS NOT RECEIVED

Reason: A parameter statement with a trailing comma was followed by a parameter with a new major keyword or the parameter was the final statement in the input. Parameter is accepted as entered unless CONT=NO was specified.

Action: Correct the parameter and resubmit.

E008 KEYWORD TABLE IS MISSING

Reason: CA-IDMS/Log Analyzer load module is incomplete. Processing terminates with an abend.

Action: Confirm that CA-IDMS/Log Analyzer was properly installed and reinstall as necessary.

E009 KEYWORD VALUE ERROR text

Reason: The value entered for a keyword was unacceptable to CA-IDMS/Log Analyzer. The specific problem is noted in the text. CA-IDMS/Log Analyzer ignores invalid keyword and skips to the next valid keyword. Processing continues unless CONT=NO was specified.

Action: Correct the parameter and resubmit.

E010 LIMIT OF 20 REPORT PARAMETERS REACHED

Reason: More than twenty (20) valid report parameters have been encountered. The first twenty (20) parameters are processed unless CONT=NO was specified.

Action: Eliminate the excess parameter statements.

E011 ALL REPORT REQUESTS WERE INVALID

Reason: All report requests entered were invalid. Processing terminates with an abend.

Action: Correct the requests and resubmit.

E012 FILE USED AS LOG ARCHIVE IS OF UNKNOWN TYPE

Reason: First record on the log archive file was not of a known log type. Processing terminates with an abend.

Action: Supply a correct file and resubmit.

E013 SORT FAILED sort return code/program name/sort number

Reason: An internally requested sort has ended improperly. Processing terminates with an abend. Message text lists the return code received from the sort, the name of the CA-IDMS/Log Analyzer module that requested the sort and the number of the sort within that module (if the module does more than one sort).

Action: Based on sort message content, correct the problem and resubmit.

E014 REPORT UNKNOWN text

Reason: A report request was submitted for an unrecognized report. Message text lists the unrecognized report. CA-IDMS/Log Analyzer ignores an invalid request and skips to the next valid request. Processing continues unless CONT=NO was specified.

Action: Correct the request and resubmit.

E015 Log Analyzer TERMINATED &ellips.

&ellips. ALL ARCHIVE LOG RECORDS FAILED &ellips.

Reason:

1. The Log file was created without specifying STATISTICS TASK WRITE in the central version (CV) sysgen.
2. START, STOP, NAME, etc. parameters found no matching Archive Log Records.
3. The database log was used as input.

Processing terminates by forcing an abend.

Action:

1. Check the I006 messages for record types 6-02 and 6-03. If none of these record types are present, ensure that the CV was generated with STATISTIC TASK WRITE. Additionally, if CA-IDMS/TASK ANALYZER is installed, ensure that DC STATISTICS Y is specified on USFAOPT.
2. Change the selection parameter or supply a different Archive Log File.
3. Change the JCL to specify a proper log file for input. See Note 4 in Chapter 5, "Operations" on page 5-1.

&ellips. PARAMETER STATEMENTS ARE REQUIRED

Reason: CA-IDMS/Log Analyzer must have input parameters. The input parameter file is empty. Processing terminates by forcing an abend.

Action: Supply an input parameter file that contains valid CA-IDMS/Log Analyzer parameter statements.

&ellips. A PROCESS PARAMETER IS REQUIRED

Reason: CA-IDMS/Log Analyzer must have a PROCESS parameter. The input parameter file did not contain one. Processing terminates by forcing an abend.

Action: Supply an input parameter file that contains a valid CA-IDMS/Log Analyzer PROCESS parameter statement.

E016 FORMAT OF A KEYWORD PHRASE NOT RECOGNIZED text

Reason: A required delimiter has not been found following a keyword. The PROCESS keyword must not be followed by an equal (=) sign. All other keyword phrases are composed of a major keyword, an equal (=) sign, and a minor keyword or variable data. CA-IDMS/Log Analyzer ignores invalid keyword and skips to the next valid keyword. Processing continues unless CONT=NO was specified. Text contains the specific input that caused the problem.

Action: Correct the problem and resubmit.

E017 CONFLICTING KEYWORD PARAMETERS text

Reason: Mutually exclusive keywords or keyword values have been entered. CA-IDMS/Log Analyzer ignores the conflicting keyword or value and skips to the next valid keyword. Processing continues unless CONT=NO was specified.

Action: Correct the problem and resubmit.

E018 GSSCVDT FAILED function return-code/Julian-date

Reason: GSSCVDT was called to convert a date from/to a Gregorian format. The non-zero return code is shown. Possible functions are:

- J--convert 00YYDDD to MM/DD/YY
- G--convert 0MMDDYY to YYDDD

Possible return codes are:

- 4--invalid function code
- 8--Julian date is out of range
- 12--Julian date contains invalid characters
- 16--Gregorian date contains invalid characters
- 20--Gregorian month is out of range
- 24--Gregorian day is out of range

Processing terminates by forcing an abend.

Action: An internal error has occurred. Contact Computer Associates, Inc. Product Support.

E019 GSSCALL FAILED program-name/return-code

Reason: GSSCALL was called to invoke program-name. The non-zero return code is shown. Possible return codes are:

- 4--invalid parameters
- 8--module program-name was not found in the load or core image library
- 12--not enough storage was available in the region or partition to successfully load program-name
- 16--an internal error has occurred

Processing terminates by forcing an abend.

Action: For return code 8 or 12, make the appropriate change to the JCL and rerun. For return code 4 or 16, contact Computer Associates, Inc. Product Support.

6.2.2 Informative Messages

CA-IDMS/Log Analyzer Informative Messages are prefixed by an Innn number. The following list provides an explanation of each message.

I001 Log Analyzer started/ended date & time

Reason: The starting/ending date and time of CA-IDMS/Log Analyzer processing are displayed.

Action: None.

I002 INPUT PARAMETER STATEMENT statement

Reason: The parameter statement as read is displayed.

Action: None.

I003 PROCESSING OPTIONS options

Reason: The processing options as interpreted by CA-IDMS/Log Analyzer are displayed.

Action: None.

I004 ARCHIVE RECORDS WILL BE PROCESSED FOR report type

Reason: The report types for which archive records are to be processed are displayed.

Action: None.

I005 EXTRACT PROCESSING started/ended date & time

Reason: The starting/ending date and time of the extract phase of CA-IDMS/Log Analyzer are displayed.

Action: None.

I006 ARCHIVE RECORDS PROCESSED FOR THIS TYPE log-record-type count

Reason: A count of archive records of a specific type on the Archive Log File is displayed. CA-IDMS/Log Analyzer reports on the task and transaction statistic records. Check the STATISTICS parameter of your central version (CV) sysgen if your CA-IDMS/Log Analyzer Audit Report does not show I006 messages for record types 6-02 and 6-03.

Action: None.

I007 TOTAL ARCHIVE RECORDS PROCESSED count

Reason: A count of archive records on the log archive file is displayed.

Action: None.

I008 EXTRACT RECORDS WERE CREATED FOR report-type count

Reason: A count of extract records created for a specific report type is displayed.

Action: None.

I009 TOTAL EXTRACT RECORDS CREATED count

Reason: A count of extract records created is displayed.

Action: None.

I010 REPORT PROCESSING started/ended date & time

Reason: The starting/ending date and time of the report phase of CA-IDMS/Log Analyzer are displayed.

Action: None.

I011 REPORT WAS CREATED FOR YOUR PARAMETER parameter

Reason: The report options selected for a specified report request are displayed. Your options, as well as the defaults supplied by CA-IDMS/Log Analyzer are included with this message.

Action: None.

I012 PARAMETER PROCESSING TOTALS category count

Reason: A count of parameter statements processed of a specific category is displayed.

Action: None.

I013 TOTAL RECORDS ADDED TO THE BILLING FILE count

Reason: A count of the Billing Records that were created as a result of a REPORT=BILLING request(s) is displayed. This count should be equal to the sum of the counts of type 6-28 and type 6-34 (CA-ADS dialogs) records.

Action: None.

Two types of errors can be reported by the return codes of n1, n2, n3, and n4--non-VSAM file errors and VSAM file errors. The error is described by n2 and n4. For VSAM file errors, n4 is always equal to 28. The error is described by n1, n2, and n3. A general return code is given by n4 for both non-VSAM and VSAM errors. All return codes are decimal values.

Table 6-1 (Page 1 of 2). Return Codes

n4	Reason	Action
4	End-of-file	Call Product Support.
8	Open error or file is not open	Look for JCL errors or for the use of improper files.
12	An I/O error has occurred	Find cause for I/O error.
16	Request not recognized	Call Product Support.
20	File was already opened	Call Product Support.
24	Parameter list error	Call Product Support.
28	VSAM error n1=R15 return code from VSAM n2=low order byte from R0 GENCB/MODCB type of error n3=VSAM feedback byte error in I/O request	Use n1, n2, and n3 to check for possible user errors. If there are no user errors, call Product Support.
32	Insufficient storage	Increase storage for job step.
36	SYNAD error occurred n1=byte 1 of DECB n2=byte 2 of DECB N3=byte 3 of DECB	For BDAM files.
40	BPAM FIND error n1=R15 n2=R0	Use n1 and n2 (as described in Data Management Macro Instructions) to check for errors.
44	BPAM STOW error n1=R15 n2=0	Use n1 and n2 (as described in Data Management Macro Instructions) to check for errors.
n2	Reason	Action
0	n4=8, use of unopened file	Call Product Support.
	n4=24, parameter list error	Call Product Support.
1	JCL/label overrode parm list	Remove DCB information from JCL and ensure that the correct files are referenced.

Table 6-1 (Page 2 of 2). Return Codes

n4	Reason	Action
2	Parm list overrode JCL/label	Remove DCB information from JCL and ensure that the correct files are referenced.
3	Unrecognized request	Call Product Support.
4	OS x13 ABEND trapped at open	Fix cause for x13 ABEND.
5	Tried to update seq. file	Call Product Support.
6	VSAM write at other than load	Call Product Support.
7	SOS table could not expand	Call Product Support.
8	OS DCB open failed	Call Product Support.
9	SOS table buffer pointer lost	Call Product Support.
10	SOS table file CB not built	Call Product Support.
11	OS DD statement Missing	Supply missing DD statement.
12	VSAM ACB open failed	Call Product Support.
13	Record format invalid	Call Product Support.
14	Macro format invalid	Call Product Support.
15	Record length not numeric	Call Product Support.
16	Record length too large	Call Product Support.
17	Block size not numeric	Call Product Support.
18	Block size too large	Call Product Support.
19	Invalid DOS sysname table	Assemble a valid sysname table.
20	DOS sysname table entry missing	Assemble a sysname table with an entry for the missing one.
21	DOS LU number too large	Use an LU number within range.
22	DOS sysname is not numeric or is misspelled	Correct to a valid sysname.
23	DOS sysname blank	Do not use blank sysname.
24	DOS LU not assigned	Call Product Support.
25	DOS DTF prototype missing	Call Product Support.
26	DOS logic module missing	Generate missing logic module.
27	DOS CCW mismatch	Call Product Support.
28	File is not a PDS	Allocate file to a PDS.

6.2.3 Error Displays

CA-IDMS/Log Analyzer Error Displays appear on the SYSOUT or SYSLST file of your job. They always appear when CA-IDMS/Log Analyzer requests an ABEND. An ABEND will be requested if a parameter error is detected, or if an I/O error occurs while processing one of the CA-IDMS/Log Analyzer input or output files.

THE LOG ANALYZER MODULE module-name REQUESTED A PREMATURE TERMINATION. PLEASE REFER TO LOG ANALYZER AUDIT REPORT FOR AN ERROR MESSAGE WITH THE SPECIFIC PROBLEM NOTED.

Reason: These messages appear whenever a premature termination of CA-IDMS/Log Analyzer processing is requested. Depending on the PROCESS parameter ABEND, an operation exception may also occur.

Action: Check the CA-IDMS/Log Analyzer Audit Report for a related error message and take any action dictated by that message.

GSFL999I file-id IS NOT VSAM - WILL TRY QSAM

Reason: Appears in VSE/ESA when the indicated file is not a VSAM file. The message is preceded by a system message indicating an open error for a VSAM file. If the attempt to open the file for QSAM processing is successful, CA-IDMS/Log Analyzer will continue with normal processing.

Action: None.

Appendix A. USLBILX and USLRPT5 Source Code

A.1 Overview

This appendix gives instructions for printing the Computer Associates International, Inc. source code for USLBILX and USLRPT5. The source code will allow you to tailor the CA-IDMS/Log Analyzer billing reports.

A.1.1 Location of Source Code

The source code for USLBILX and USLRPT5 was cataloged into your source statement library during the installation procedure. The procedure for listing these modules differs for OS/390 and VSE/ESA users. See the *CA-IDMS Installation and Maintenance Guide* for further information.

A.1.2 Listing Modules for OS/390

Computer Associates International, Inc. suggests that OS/390 users use the utility IEBGENER to print or punch the source code for the desired member.

A.1.3 Listing Modules for VSE/ESA

Computer Associates International, Inc. suggests that VSE/ESA users use the LIBR function LIST or PUNCH to display and/or punch the desired modules. USLBILX and USLRPT5 are in the COBOL statement library.

Appendix B. External Request Element Extension

B.1 Overview

This appendix provides a description of the External Request Element (ERE) extension.

Altering the ERE description is necessary if you want to tailor the CA-IDMS/Log Analyzer Billing Reports or the Billing Record file.

To change the ERE extension you must alter GSISVCX, USLBILX, and USLRPT5.

```
*------------------------------------------------------------------------------*
*   ERE LAYOUT (AS CREATED BY GSISVCX FOR USE IN CA-IDMS/LOG ANALYZER)         *
*                                                                              *
*   NOTE: THESE FIELDS ARE CONTAINED WITHIN THE EXTRACT RECORD                 *
*                                                                              *
*------------------------------------------------------------------------------*
               25  EXT-LOG ERUS-ID
                     30  EXT-LOG-ERE-JOB-NAME        PIC X(08).
***    THE FOLLOWING DATES ARE BINARY FIELDS, IN JULIAN FORMAT (YYDDD)
***    FOR OS         THE TIME IS IN 1/100 SEC
***                IE. DIVISION BY 100 YIELDS HHMMSS
***    FOR DOS BATCH/CICS, THE TIME IS IN UNITS OF 1/10000 SEC
*
                       30  EXT-LOG-ERE-JOB-START-TIME PICX (03).
                       30  EXT-LOG-ERE-JOB-START-DATE PIC S9(5)
                                                      COMP-3.
                       30  EXT-LOG-ERE-JOB-STEP-TIME  PIC X(03).
                       30  EXT-LOG-ERE-ID             PIC X(04).
                           88  EXT-LOG-ERE-VM      VALUE '   V'.
                           88  EXT-LOG-ERE-CICS    VALUE'    C'.
                       30  EXT-LOG-ERE-EXT-ONL.
                           35  EXT-LOG-ERE-TRAN-ID    PIC X(04).
                           35  EXT-LOG-ERE-TERM-ID    PIC X(04).
                           35  EXT-LOG-ERE-OPER-ID    PIC X(03).
                           35  FILLER                 PIC X(05).
                       30  EXT-LOG-ERE-EXT-BTC        REDEFINES
                           EXT-LOG-ERE-EXT-ONL.
                           35  EXT-LOG-ERE-ACCT       PIC X(16).
                       30  EXT-LOG-ERE-JOB-STEP-DATE  PIC X(03).
```

Appendix C. EXTRACT Record

C.1 Overview

This appendix provides the description of the EXTRACT record. CA-IDMS/Log Analyzer uses the EXTRACT record to generate reports.

```
*------------------------------------------------------------------------*
*                                                                        *
*   EXTRACT RECORD                                                       *
*                                                                        *
*  FOLLOWING IS A COBOL RECORD DESCRIPTION OF THE EXTRACT RECORD         *
*                                                                        *
*   NOTE:   THIS COPY BOOK IS USED BY MANY CA-IDMS/LOG ANALYZER MODULES.      *
*         DISCRETION MUST BE USED IN CHANGING IT.                        *
*                                                                        *
*------------------------------------------------------------------------*

  02  EXTRACT-RECORD-INIT                    PIC X(516)
                                           VALUE LOW-VALUES

  02  EXTRACT-RECORD                         REDEFINES
    EXTRACT-RECORD-INIT                                SYNC.

   05 FILLER.
      10  EXT-LENGTH                        PIC S9(4)       COMP.
      10  FILLER                            PIC S9(4)       COMP.

   05 EXT-SORT-KEY.

      10  EXT-REQUEST-NUMBER                   PIC S9(2)       COMP.

      10  EXT-REPORT-TYPE                      PIC X(02).
        88  EXT-BILLING                       VALUE '25'.
        88  EXT-PROG                          VALUE '31'.
        88  EXT-HISUM                            VALUE '95'.
        88  EXT-HIBPU                            VALUE '96'.
        88  EXT-RANK                          VALUE '97'.

***
***    THESE DATES ARE IN JULIAN FORMAT (00YYDDD)
***    THESES TIMES ARE IN UNITS OF 1 MINUTE
***

      10  EXT-INTERVAL-START-DATE-TIME.
          15 EXT-INTERVAL-START-DATE        PIC S9(7)       COMP-3.
          15 EXT-INTERVAL-START-TIME        PIC S9(9)       COMP.

      10  EXT-INTERVAL-STOP-DATE-TIME.
          15 EXT-INTERVAL-STOP-DATE            PIC S9(7)       COMP-3.
          15 EXT-INTERVAL-STOP-TIME            PIC S9(9)       COMP.

      10  EXT-VAR-SORT-INFO                 PIC X(36).

      10  EXT-BILL-SORT                     REDEFINES
          EXT-VAR-SORT-INFO.
          15 EXT-BILL-SORT-NAME                PIC X(16).
          15 EXT-BILL-SORT-LEVEL-ID            PIC X(01).
```

```
           88  EXT-BILL-LEVEL-DETAIL       VALUE '1'.
           88  EXT-BILL-LEVEL-SYSTEM       VALUE '0'.
        15 FILLER                          PIC X(01).
        15 EXT-BILL-SORT-DATE-TIME.
           20 EXT-BILL-SORT-DATE               PIC S9(7)       COMP-3.
           20 EXT-BILL-SORT-TIME               PIC X(13).
        15 EXT-BILL-SORT-ONL-BTC            PIC X(01).
           88  EXT-BILL-ONL                    VALUE '1'.
           88  EXT-BILL-BTC                    VALUE '2'.
     10 EXT-PROG-SORT                       REDEFINES
        EXT-VAR-SORT-INFO.
        15 EXT-PROG-SORT-PGMNAME            PIC X(08).
        15 FILLER                           PIC X(08).
        15 EXT-PROG-SORT-LEVEL-ID               PIC X(01).
           88  EXT-PROG-LEVEL-DETAIL       VALUE '1'.
           88  EXT-PROG-LEVEL-SYSTEM       VALUE '0'.
        15 FILLER                           PIC X(01).
        15 EXT-PROG-SORT-DATE-TIME.
           20 EXT-PROG-SORT-DATE               PIC S9(7)       COMP-3.
           20 EXT-PROG-SORT-TIME               PIC X(13).
        15 EXT-PROG-SORT-ONL-BTC            PIC X(01).
           88  EXT-PROG-ONL                    VALUE '1'.
           88  EXT-PROG-BTC                    VALUE '2'.

     10 EXT-HISUM-SORT                      REDEFINES
        EXT-VAR-SORT-INFO.
        15 EXT-HISUM-SORT-PGMNAME               PIC X(08).
        15 FILLER                           PIC X(07).
        15 EXT-HISUM-SORT-ONL-BTC               PIC X(01).
           88  EXT-HISUM-ONL                   VALUE '1'.
           88  EXT-HISUM-BTC                   VALUE '2'.
        15 EXT-HISUM-SORT-LEVEL-ID          PIC X(01).
           88  EXT-LEVEL-DETAIL                VALUE '1'.
           88  EXT-LEVEL-MEDIAN                VALUE '0'.
        15 FILLER                           PIC X(01).
        15 EXT-HISUM-SORT-COUNT-ID          PIC S9(4)       COMP.
        15 EXT-HISUM-SORT-COUNT             PIC S9(9)       COMP.
        15 EXT-HISUM-SORT-RATIO             REDEFINES
           EXT-HISUM-SORT-COUNT             PIC S9(7)V99    COMP.
        15 FILLER                           PIC X(12).

     10 EXT-HIBPU-SORT                      REDEFINES
        EXT-VAR-SORT-INFO.
        15 EXT-HIBPU-SORT-DATE-HOUR.
           20 EXT-HIBPU-SORT-DATE              PIC S9(7)       COMP-3.
           20 EXT-HIBPU-SORT-HOUR              PIC S9(9)       COMP.
        15 FILLER                           PIC X(08).
        15 EXT-HIBPU-SORT-LEVEL-ID          PIC X(01).
           88  EXT-LEVEL-DETAIL                VALUE '1'.
           88  EXT-LEVEL-MEDIAN                VALUE '0'.
        15 FILLER                           PIC X(03).
        15 EXT-HIBPU-SORT-RATIO             PIC S9(7)V99    COMP.
        15 FILLER                           PIC X(12).

     10 EXT-RANK-SORT                       REDEFINES
        EXT-VAR-RANK-INFO.
        15 EXT-RANK-SORT-PGMNAME            PIC X(08).
        15 FILLER                           PIC X(08).
        15 EXT-RANK-SORT-LEVEL-ID               PIC X(01).
```

```
            88  EXT-LEVEL-DETAIL              VALUE '1'.
            88  EXT-LEVEL-MEDIAN              VALUE '0'.
          15 EXT-RANK-SORT-ZERO-POSITION    PIC X(03).
            88  EXT-RANK-ZERO-FIRST           VALUE LOW-VALUES.
            88  EXT-RANK-ZERO-LAST          VALUE HIGH-VALUES.
          15 EXT-RANK-SORT-VALUE              PIC S9(9)       COMP.
          15 EXT-RANK-SORT-RATIO              REDEFINES
             EXT-RANK-SORT-VALUE             PIC S9(7)V99    COMP.
          15 FILLER                          PIC X(12).

   05 EXT-PARM-ENTRY.

      10  EXT-MATCHED-REPORT-TYPE           PIC X(02).
      10  FILLER                            PIC X(02).

***
***   THE FOLLOWING DATES ARE IN JULIAN FORMAT (CCYYDDD)
***   THE TIMES ARE IN 24 HOUR DISPLAY FORMAT (HH.MM.SS.TTTT)
***

      10  EXT-START-DATE-TIME.
          15 EXT-START-DATE                  PIC S9(7)       COMP-3.
          15 EXT-START-TIME.
             20 HH                           PIC 99.
             20 FILLER                       PIC X(01).
             20 MM                           PIC 99.
             20 FILLER                       PIC X(01).
             20 SS                           PIC 99.
             20 FILLER                       PIC X(01).
             20 TTTT                         PIC 9(04).

      10  EXT-STOP-DATE-TIME.
          15 EXT-STOP-DATE                   PIC S9(7)       COMP-3.
          15 EXT-STOP-TIME.
             20 HH                           PIC 99.
             20 FILLER                       PIC X(01).
             20 MM                           PIC 99.
             20 FILLER                       PIC X(01).
             20 SS                           PIC 99.
             20 FILLER                       PIC X(01).
             20 TTTT                         PIC 9(04).

      10  EXT-INTERVAL-LENGTH                  PIC S9(5)       COMP-3.
      10  FILLER                            PIC X(01).

      10  EXT-REPORT-CONTROL                   PIC X(36).

      10  EXT-BILLING-TYPE                  REDEFINES
          EXT-REPORT-CONTROL.

          15 EXT-BILLING-LEVEL               PIC X(01).
            88  EXT-BILL-DETAIL             VALUE '1'.
            88  EXT-BILL-SUMMARY               VALUE '3'.
            88  EXT-BILL-SYSTEM             VALUE '5'.
            88  EXT-PRINT-BILL-DETAIL       VALUE '1'.
            88  EXT-PRINT-BILL-SUMMARY         VALUE '1' '3'.
            88  EXT-PRINT-BILL-SYSTEM       VALUE '1' '3' '5'.

          15 EXT-BILLING-LOW-HIGH.
```

```
           20 EXT-BILL-NAME-LOW          PIC X(16).
           20 EXT-BILL-NAME-HIGH            PIC X(16).

        15 EXT-BILL-FILE                 PIC X(01).
          88  EXT-BILL-YES                 VALUE 'Y'.
          88  EXT-BILL-NO                VALUE 'N'.
          88  EXT-BILL-ONLY                VALUE 'O'.

        15 EXT-BILL-TYPEPROG              PIC X(01).
          88  EXT-BILL-ALL                 VALUE '0'.
          88  EXT-BILL-ONLINE            VALUE '1'.
          88  EXT-BILL-BATCH             VALUE '2'.

        15 EXT-BILL-TYPENAME              PIC X(01).
          88  EXT-BILL-TRAN-ID             VALUE '1'.
          88  EXT-BILL-TERM-ID             VALUE '2'.
          88  EXT-BILL-OPER-ID             VALUE '3'.

      10  EXT-PROGRAM-TYPE                REDEFINES
        EXT-REPORT-CONTROL.

        15 EXT-PROG-LEVEL                 PIC X(01).
          88  EXT-PROG-DETAIL            VALUE '1'.
          88  EXT-PROG-SUMMARY             VALUE '3'.
          88  EXT-PROG-SYSTEM            VALUE '5'.
          88  EXT-PRINT-PROG-DETAIL      VALUE '1'.
          88  EXT-PRINT-PROG-SUMMARY       VALUE '1' '3'.
          88  EXT-PRINT-PROG-SYSTEM      VALUE '1' '3' '5'.

        15 EXT-PROGRAM-LOW-HIGH.
           20 EXT-PROG-NAME-LOW           PIC X(08).
           20 EXT-PROG-NAME-HIGH             PIC X(08).

      10  EXT-HISUM-TYPE                  REDEFINES
        EXT-REPORT-CONTROL.
        15 EXT-HISUM-LEVEL                   PIC X(01).
          88  EXT-HISUM-PROGRAM          VALUE '2'.
          88  EXT-HISUM-SYSTEM             VALUE '5'.
          88  EXT-HISUM-GRAND            VALUE '6'.

      10  EXT-RANKING-TYPE                REDEFINES
        EXT-REPORT-CONTROL.
        15 EXT-RANK-NUMBER                   PIC S9(2)       COMP-3.

        15 EXT-RANK-PROG                  PIC X(01).
          88  EXT-RANK-ALL                 VALUE '0'.
          88  EXT-RANK-ONLINE            VALUE '1'.
          88  EXT-RANK-BATCH             VALUE '2'.

        15 EXT-RANK-ITEM                  PIC X(01).
          88  EXT-RANK-RUN-UNITS         VALUE '1'.
          88  EXT-RANK-PAGE-READ         VALUE '2'.
          88  EXT-RANK-PAGE-WRITTEN      VALUE '3'.
          88  EXT-RANK-PAGE-IO             VALUE '4'.
          88  EXT-RANK-PAGE-RATIO          VALUE '5'.
          88  EXT-RANK-CALC-RATIO          VALUE '6'.
          88  EXT-RANK-VIA-RATIO         VALUE '7'.
          88  EXT-RANK-CPU-TIME          VALUE '8'.
          88  EXT-RANK-RATIO             VALUE '5' THRU '7'.
```

```
          15 EXT-RANK-HOW                    PIC X(02).
            88  EXT-RANK-HIGHEST             VALUE '01'.
            88  EXT-RANK-LOWEST            VALUE '02'.
            88  EXT-RANK-LT                VALUE '11'.
            88  EXT-RANK-LE                VALUE '12'.
            88  EXT-RANK-GT                VALUE '13'.
            88  EXT-RANK-GE                VALUE '14'.
            88  EXT-RANK-LT-OR-GT          VALUE '21'.
            88  EXT-RANK-LE-OR-GE          VALUE '22'.
            88  EXT-RANK-GT-AND-LT         VALUE '23'.
            88  EXT-RANK-GE-AND-LE         VALUE '24'.
            88  EXT-RANK-OR                VALUE '21' '22'.
            88  EXT-RANK-AND                  VALUE '23' '24'.
            88  EXT-RANK-NO-VALUES         VALUE '01' '02'.
            88  EXT-RANK-ONE-VALUE         VALUE '11'
                                            THRU '14'.
            88  EXT-RANK-TWO-VALUES           VALUE '21'
                                           THRU '24'.
            88  EXT-RANK-ASC-SORT          VALUE '02' '13' '14'.

          15 EXT-RANK-VALUE1                   PIC S9(9)       COMP-3.

          15 EXT-RANK-VALUE2                   PIC S9(9)       COMP-3.

          15 EXT-RANK-VALUE-TYPE               PIC X(01).
            88  EXT-RANK-ABSOLUTE            VALUE '1'.
            88  EXT-RANK-MEAN                   VALUE '2'.
            88  EXT-RANK-MEDIAN              VALUE '3'.
       10  FILLER                            PIC X(02).
    05 EXT-LOG-RECORD.
       10  EXT-LOG-HEADER.
           15 EXT-LOG-LENGTH                 PIC S9(4)       COMP.
           15 FILLER                         PIC X(02).
***  THE FOLLOWING 10 LEVEL IS FROM #LGRDS
       10  FILLER.
*
***  THE FOLLOWING DATE IS IN SQL INTERNAL FORMAT
***  BITS  00-26 = NBR OF DAYS SINCE JANUARY 1, 0001
***  BITS  27-43 = NBR OF SECONDS SINCE MIDNIGHT OF THIS DAY
***  BITS  44-63 = NBR OF MICROSECONDS WITHIN THIS SECOND
*
           15 EXT-LOG-SQL-DATE             PIC S9(18)   COMP.
           15 EXT-LOG-DATE-TIME             REDEFINES
              EXT-LOG-SQL-DATE             PIC X(08).
           15 EXT-LOG-ID                    PIC X(08).
           15 EXT-LOG-REC-TYPE              PIC X(01).
              88 EXT-VALID-LOG-REC          VALUE '0' THRU '6'.
              88 EXT-VALID-LOG-STAT-REC        VALUE '6'.
*** THE FOLLOWING VALUE CLAUSE
***               CONTAINS X'76'
*** TYPE X'76' LOG RECORDS ARE CONTINUED IN THE NEXT
*** TYPE 6 RECORD ON THE LOG FILE.
              88 EXT-STAT-HEX-76-LOG-REC    VALUE ' '.
           15 EXT-LOG-REC-TYPE-9               REDEFINES
              EXT-LOG-REC-TYPE             PIC 9(01).
           15 EXT-LOG-REC-STATUS               PIC X(01).
           15 EXT-LOG-REC-TEXT-LEN          PIC S9(4)       COMP.
***  THE FOLLOWING 10 LEVEL IS FROM #STLDS.      IT
```

```
***  INDICATES THE TYPE OF STATISTICS RECORD
***  WHEN EXT-LOG-REC-TYPE = C'6' OR X'76'
      10  EXT-LOG-REC-STATS-PORTION.
          15 EXT-LOG-STL-TYPE               PIC X(01).
***  THE FOLLOWING VALUE CLAUSE
***               CONTAINS X'00' AND X'0A'
             88 EXT-LOG-STL-VALID-TYPE         VALUE ' ' THRU ' '.
***  THE FOLLOWING VALUE CLAUSES
***               CONTAIN X'00' THROUGH X'0A' RESPECTIVELY
             88 EXT-LOG-STL-STARTUP            VALUE ' '.
             88 EXT-LOG-STL-SYSTEM             VALUE ' '.
             88 EXT-LOG-STL-TST                VALUE ' '.
             88 EXT-LOG-STL-TSB                VALUE ' '.
             88 EXT-LOG-STL-TDE                VALUE ' '.
             88 EXT-LOG-STL-PDE                VALUE ' '.
             88 EXT-LOG-STL-QDE                VALUE ' '.
             88 EXT-LOG-STL-PLE                VALUE ' '.
             88 EXT-LOG-STL-PTE                VALUE ' '.
             88 EXT-LOG-STL-ADS                VALUE ' '.
             88 EXT-LOG-STL-OTP                VALUE ' '.
          15 EXT-LOG-STL-ID                 PIC X(16).
          15 EXT-LOG-STL-PDE-NAME           REDEFINES
             EXT-LOG-STL-ID                 PIC X(08).
          15 EXT-LOG-STL-PTE-NAME           REDEFINES
             EXT-LOG-STL-ID                 PIC X(08).
          15 EXT-LOG-STL-PLE-NAME           REDEFINES
             EXT-LOG-STL-ID                 PIC X(08).
          15 EXT-LOG-STL-TDE-NAME           REDEFINES
             EXT-LOG-STL-ID                 PIC X(08).
          15 EXT-LOG-STL-QDE-NAME           REDEFINES
             EXT-LOG-STL-ID                 PIC X(16).
          15 FILLER                         PIC X(03).
***  THE FOLLOWING 10 LEVEL IS FROM #STRDS.      IT
***  DESCRIBES THE FIELDS IN EACH STATISTICS BLOCK.
***  THE TYPE AND ORDER OF BLOCKS DEPENDS ON THE TYPE
***  OF STATISTICS RECORD (LOG-REC-TYPE)
***

***  CA-IDMS/LOG ANALYZER IS ONLY CONCERNED WITH THE NON-HISTOGRAM
***  RECORDS FOR TASK-ID AND TRANSACTION (LOG-STL-TYPE 02 AND 03)
***  THESE CONTAIN THE DC-STATISTICS BLOCK FOLLOWED BY
***                 THE DB-STATISTICS BLOCK FOLLOWED BY
***                 THE HEADER BLOCK
      10  EXT-LOG-STR-BLOCK.
          15 EXT-LOG-STR-TYPE               PIC X(01).
***  THE FOLLOWING VALUE CLAUSES
***               CONTAIN X'00' THROUGH X'0C' RESPECTIVELY
             88 EXT-LOG-STR-HEADER             VALUE ' '.
             88 EXT-LOG-STR-SYSTEM             VALUE ' '.
             88 EXT-LOG-STR-DB              VALUE ' '.
             88 EXT-LOG-STR-DC              VALUE ' '.
             88 EXT-LOG-STR-SQL                VALUE ' '.
             88 EXT-LOG-STR-TDE                VALUE ' '.
             88 EXT-LOG-STR-PDE                VALUE ' '.
             88 EXT-LOG-STR-QDE                VALUE ' '.
             88 EXT-LOG-STR-PLE                VALUE ' '.
             88 EXT-LOG-STR-PTE                VALUE ' '.
             88 EXT-LOG-STR-ASB                VALUE ' '.
             88 EXT-LOG-STR-HIS                VALUE ' '.
```

```
            88 EXT-LOG-STR-DDS               VALUE ' '.
         15 FILLER                        PIC X(01).
         15 EXT-LOG-STR-VARIANT-LEN        PIC S9(4)       COMP.
         15 EXT-LOG-STR-ID                 PIC X(04).
            88 EXT-LOG-STR-R102            VALUE 'R102'.
            88 EXT-LOG-STR-R120            VALUE 'R120'.
      10  EXT-LOG-STATISTICS-VARIANT       PIC X(324).

***  THE FOLLOWING 10 LEVEL IS A CONTINUATION OF #STRDS.      IT
***  DESCRIBES THE COUNTS IN EACH STATISTICS BLOCK.
      10  EXT-LOG-COUNTS                   REDEFINES
          EXT-LOG-DC-STATISTICS-VARIANT.
          15 EXT-LOG-DC-STATISTICS                      COMP.
             20 EXT-TST-PGM-CALLED            PIC S9(9).
             20 EXT-TST-PGM-LOADED            PIC S9(9).
             20 EXT-TST-TRM-READS           PIC S9(9).
             20 EXT-TST-TRM-WRITES            PIC S9(9).
             20 EXT-TST-TRM-ERRORS            PIC S9(9).
             20 EXT-TST-STG-GETS            PIC S9(9).
             20 EXT-TST-SCR-GETS            PIC S9(9).
             20 EXT-TST-SCR-PUTS            PIC S9(9).
             20 EXT-TST-SCR-DELETES           PIC S9(9).
             20 EXT-TST-QUE-GETS            PIC S9(9).
             20 EXT-TST-QUE-PUTS            PIC S9(9).
             20 EXT-TST-QUE-DELETES           PIC S9(9).
             20 EXT-TST-GET-TIME            PIC S9(9).
             20 EXT-TST-SET-TIME            PIC S9(9).
             20 EXT-TST-DB-REQUESTS           PIC S9(9).
             20 EXT-TST-STK-HI-WATER-MARK     PIC S9(9).
             20 EXT-TST-USER-TIME           PIC S9(9).
             20 EXT-TST-SYSTEM-TIME           PIC S9(9).
             20 EXT-TST-WAIT-TIME           PIC S9(9).
             20 EXT-TST-MAX-RCE               PIC S9(9).
             20 EXT-TST-MAX-RLE               PIC S9(9).
             20 EXT-TST-MAX-DPE               PIC S9(9).
             20 EXT-TST-STG-HI-WATER-MARK     PIC S9(9).
             20 EXT-TST-STGF-REQUESTS       PIC S9(9).
             20 EXT-TST-DC-REQUESTS           PIC S9(9).
          15 FILLER                        PIC X(08).
          15 EXT-LOG-DB-STATISTICS                      COMP.
             20 EXT-TST-PAGES-READ            PIC S9(9).
             20 EXT-TST-PAGES-WRITTEN       PIC S9(9).
             20 EXT-TST-PAGES-REQUESTED     PIC S9(9).
             20 EXT-TST-CALC-ON-HOME        PIC S9(9).
             20 EXT-TST-CALCS-IN-OVERFLOW     PIC S9(9).
             20 EXT-TST-VIAS-ON-HOME        PIC S9(9).
             20 EXT-TST-VIAS-IN-OVERFLOW    PIC S9(9).
             20 EXT-TST-RECS-REQUESTED        PIC S9(9).
             20 EXT-TST-RECS-MADE-CURRENT     PIC S9(9).
             20 EXT-TST-CALLS-TO-IDMS       PIC S9(9).
             20 EXT-TST-FRAGMENTS-STORED    PIC S9(9).
             20 EXT-TST-RECS-RELOCATED        PIC S9(9).
             20 EXT-TST-LOCKS-ACQUIRED        PIC S9(9).
             20 EXT-TST-SHARE-LOCKS           PIC S9(9).
             20 EXT-TST-NON-SHARE-LOCKS     PIC S9(9).
             20 EXT-TST-LOCKS-FREED           PIC S9(9).
             20 EXT-TST-SR8-SPLINTS           PIC S9(9).
             20 EXT-TST-SR8-SPAWNS            PIC S9(9).
             20 EXT-TST-SR8S-STORED           PIC S9(9).
```

```
            20 EXT-TST-SR8S-ERASED           PIC S9(9).
            20 EXT-TST-SR7S-STORED           PIC S9(9).
            20 EXT-TST-SR7S-ERASED           PIC S9(9).
            20 EXT-TST-BTREE-SEARCHES        PIC S9(9).
            20 EXT-TST-BTREE-LEVELS       PIC S9(9).
            20 EXT-TST-ORPHANS-ADOPTED    PIC S9(9).
            20 EXT-TST-LVLS-SEARCHED-BEST  PIC S9(4).
            20 EXT-TST-LVLS-SEARCHED-WORST PIC S9(4).
         15 FILLER                        PIC X(08).
         15 EXT-LOG-STATISTICS-HEADER.
            20 EXT-LOG-ERUS-ID.
               25 EXT-LOG-ERUS-ERE.
                  30 EXT-LOG-ERE-JOB-NAME         PIC X(08).
***  THE FOLLOWING DATE IS IN JULIAN FORMAT (YYDDD)
***  FOR OS        THE TIME IS IN 1/100 SEC
***             IE. DIVISION BY 100 YIELDS HHMMSS
***  FOR DOS BATCH/CICS, THE TIME IS IN UNITS OF 1/10000 SEC

                  30 EXT-LOG-ERE-JOB-START-TIME   PIC X(03).
                  30 EXT-LOG-ERE-JOB-START-DATE   PIC S9(5)
                                                      COMP-3.
                  30 EXT-LOG-ERE-JOB-STEP-TIME       PIC X(03).
                  30 EXT-LOG-ERE-ID               PIC X(04).
                     88 EXT-LOG-ERE-VM     VALUE '   V.'
                     88 EXT-LOG-ERE-CICS   VALUE '   C'.
                  30 EXT-LOG-ERE-EXT-ONL.
                     35 EXT-LOG-ERE-TRAN-ID          PIC X(04).
                     35 EXT-LOG-ERE-TERM-ID          PIC X(04).
                     35 EXT-LOG-ERE-OPER-ID          PIC X(03).
                     35 FILLER                       PIC X(05).
                  30 EXT-LOG-ERE-EXT-BTC             REDEFINES
                     EXT-LOG-ERE-EXT-ONL.
                     35 EXT-LOG-ERE-ACCT             PIC X(16).
                  30 EXT-LOG-ERE-JOB-STEP-DATE       PIC X(03).
               25 EXT-LOG-ERUS-PGM-NAME.
                  30 FILLER                          PIC X(04).
                     88 EXT-LOG-ERUS-IDMS-PGM
                                             VALUE 'IDMS'.
                  30 FILLER                          PIC X(04).
            20 EXT-LOG-DC-ID                         REDEFINES
               EXT-LOG-ERUS-ID.
               25 EXT-LOG-USER-ID.
                  30 EXT-LOG-USER-ID-8               PIC X(08).
                  30 FILLER                          PIC X(24).
               25 EXT-LOG-LTERM-ID                   PIC X(08).
               25 EXT-LOG-TASK-CODE                  PIC X(08).
            20 EXT-LOG-TASK-ID                  PIC S9(9)          COMP.
***
***    THE FOLLOWING COUNTS ARE NOT IN THE ARCHIVE LOG RECORD;
***    THEY ARE COMPUTED BY USLMTCH
***
         15 EXT-USL-STATS.
            20 EXT-USL-PG-IOS-SUM                PIC S9(9)          COMP.
            20 EXT-USL-CPU-TIME-SUM           PIC S9(9)          COMP.
            20 EXT-USL-PGREQ-PGREAD-RATIO     PIC S9(7)V99       COMP.
            20 EXT-USL-RECREQ-PGREAD-RATIO PIC S9(7)V99       COMP.
            20 EXT-USL-RECREQ-RECCUR-RATIO PIC S9(7)V99       COMP.
            20 EXT-USL-CALCOVER-HOME-RATIO PIC S9(7)V99       COMP.
            20 EXT-USL-VIASOVER-HOME-RATIO PIC S9(7)V99       COMP.
```

```
            20 EXT-USL-VALUE-TO-RANK-BY    PIC S9(9)          COMP.
            20 EXT-USL-VALUE-TO-RANK-BY-RATIO REDEFINES
               EXT-USL-VALUE-TO RANK-BY    PIC S9(7)V99       COMP.

***   THE FOLLOWING DATE IS IN JULIAN FORMAT (CCYYDDD)
***   THE TIME IS IN 24 HOUR DISPLAY FORMAT (HH.MM.SS.TTTT)
         15 EXT-USL-DATE-TIME.
            20 EXT-LOG-DATE                   PIC S9(7)          COMP-3.
            20 EXT-LOG-TIME.
               25 HH                       PIC 9(02).
               25 FILLER                   PIC X(01).
               25 MM                       PIC 9(02).
               25 FILLER                   PIC X(01).
               25 SS                       PIC 9(02).
               25 FILER                    PIC X(01).
               25 TTTT                     PIC 9(04).
         15 FILLER                         PIC X(03).

      10  EXT-TST-COUNT                    REDEFINES
          EXT-LOG-COUNTS                   OCCURS 80 TIMES
                                           PIC S9(9)          COMP.

   05 EXT-RANK-RECORD                          REDEFINES
      EXT-LOG-RECORD.
      10  EXT-RANK-PGMNAME                 PIC X(08).
      10  EXT-RANK-ONL-BTC                 PIC X(01).
        88  EXT-RANK-ONL                      VALUE '1'.
        88  EXT-RANK-BTC                      VALUE '2'.
      10  FILLER                           PIC X(03).

   05 EXT-MEDIAN-RECORD                    REDEFINES
      EXT-LOG-RECORD.
      10  EXT-MEDIAN-POSITION                 PIC S9(9)          COMP.
      10  EXT-COUNT-LEVEL                     PIC S9(9)          COMP.
      10  FILLER                           PIC X(04).

   05 EXT-HISUM-RECORD                    REDEFINES
      EXT-LOG-RECORD.
      10  FILLER                           PIC X(12).

   05 EXT-HIBPU-RECORD                    REDEFINES
      EXT-LOG-RECORD.
      10  FILLER                           PIC X(12).
```

Appendix D. Billing Record file

This appendix provides a description of the CA-IDMS/Log Analyzer Billing Record File.

Altering this record layout is necessary if you want to tailor the CA-IDMS/Log Analyzer Billing file.

```
*------------------------------------------------------------------------------*
*                                                                              *
*   BILLING RECORD                                                             *
*                                                                              *
*   NOTICE:   THIS COPY BOOK IS USED BY THE CA-IDMS/LOG ANALYZER MODULE USLBILX.     *
*             DISCRETION MUST BE USED IN CHANGING IT.                          *
*                                                                              *
*      BILL-RU-START IS THE DATE/TIME THE IDMSSVCX ROUTINE RECEIVED CONTROL FOR  *
*             THE PARTICULAR RUN-UNIT.                                         *
*      BILL-RU-STOP IS THE TIME THE LOG RECORD WAS WRITTEN AND IS, IN EFFECT,    *
*             THE TIME OF TASK TERMINATION.                                    *
*      BILL-ACCT-DATA IS UP TO 16 BYTES FROM THE ACCOUNT FIELD OF THE OS OR      *
*             DOS JOB CARD.                                                    *
*                                                                              *
*      CV AND DC TASKS ARE "INTERNAL" TASKS TO CA-IDMS/DC.      THE IDMSSVCX ROUTINE *
*      DOES NOT RECEIVE CONTROL FOR INTERNAL TASKS AND AN ERE IS NEVER CREATED.     *
*      THEREFORE, JOB NAME AND RUN-UNIT START DATE/TIME IS NOT AVAILABLE.      THE   *
*      BILLING EXIT SETS THOSE FIELDS AS SHOWN BELOW:                           *
*                                                                               *
*             BILL-JOB-NAME       TO 'IDMSDBDC'                                 *
*             BILL-RU-START-DATE  TO ZERO                                       *
*             BILL-RU-START-TIME  TO ZERO                                       *
*                                                                               *
*      INTERNAL TASKS ARE IDENTIFIED BY CA-IDMS WITH A POSITIVE TASK-ID.            *
*      EXTERNAL TASKS ARE IDENTIFIED BY CA-IDMS WITH A NEGATIVE TASK-ID.            *
*      WHEN BUILDING THE BILLING RECORD, USLBILX CREATES A POSITIVE TASK-ID      *
*      FOR EXTERNAL RUN-UNITS BY MULTIPLYING THE TASK-ID BY A NEGATIVE ONE.         *
*                                                                               *
*   NOTE: BILL-RU-START-DATE IS IN      00YYDDDS FORMAT ("S" IS SIGN).               *
*         BILL-RU-START-TIME IS IN      UNITS OF 1/10,000 SECONDS.                   *
    *         BILL-RU-STOP IS IN "SQL INTERNAL" FORMAT                          *
*             BITS 00-26 = NBR OF DAYS SINCE JANUARY 1, 0001                    *
*             BITS 27-43 = NBR OF SECONDS SINCE MIDNIGHT OF THIS DATE           *
*             BITS 44-63 = NBR OF MICROSECONDS WITHIN THIS SECOND               *
*                                                                               *
*   CHANGE CONTROL.                                                                *
*-------------------------------------------------------------------------------*
    02    BILLING-RECORD-INIT VALUE LOW-VALUE    PIC X(100).

    02    BILLING-RECORD-R                       REDEFINES
          BILLING-RECORD-INIT                                    SYNC.

       05    BILL-JOB-NAME                       PIC X(08).
       05    BILL-RU-START.
             10     BILL-RU-START-DATE           PIC S9(7)       COMP-3.
             10     BILL-RU-START-TIME           PIC S9(9)       COMP.
       05    BILL-RU-STOP                        PIC S9(18)      COMP.
       05    BILL-CPU-TIME                       PIC S9(9)       COMP.
       05    BILL-TOTAL-IO                       PIC S9(9)       COMP.
       05    BILL-IDMS-TASK-ID                   PIC S9(9)       COMP.
       05    BILL-ONL-BTC                        PIC X(01).
```

```
   88     BILL-BTC                      VALUE 'B'.
   88     BILL-CICS                     VALUE 'C'.
   88     BILL-DC                       VALUE 'D'.
   88     BILL-ONL                      VALUE 'C' 'D'.
05    FILLER                            PIC X(03).

05    BILL-INFO                         PIC X(24).

05    BILL-INFO-ONLINE                  REDEFINES
      BILL-INFO.
      10     BILL-TRAN-ID               PIC X(08).
      10     BILL-TERM-ID               PIC X(08).
      10     BILL-OPER-ID               PIC X(08).

05    BILL-INFO-BATCH                   REDEFINES
      BILL-INFO.
      10     BILL-ACCT-DATA             PIC X(16).
      10     FILLER                     PIC X(08).

05    FILLER                            PIC X(36).
```

Appendix E. I/O Modules

E.1 Overview

Included here are specific names of I/O modules needed in the core image library by CA-IDMS/Log Analyzer.

Also shown are the conditions under which each I/O module is needed and typical JCL for linking the module into the core image library.

IJCFZII0 for Parameter card input

IJDFAZIZ for Printer output

IJFVZZZZ for Archive file input on tape and for EXTRACT file input on tape

IJFFZZZZ for Sequential logfile input on tape

IJFVZZWZ for EXTRACT file output on tape and for Billing file output on tape if the Billing file is customized to have variable length records.

IJFFZZWZ for Billing file output on tape

E.1.1.1 Typical JCL to link an I/O modules

```
//  OPTION        CATAL,NODUMP,NOFASTTR
    ACTION        MAP,AUTO
    PHASE         xxxxxxxx,*
    INCLUDE       xxxxxxx
//  EXEC          LNKEDT
```

Where xxxxxxxx is the name of I/O module to be linked.

Index